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☐ **Contractor**
☐ **Finance**
☐ **City Clerk**
☐ **Surety**
☐ **Granting Agency**
☐ Project Manager
☐ CM/Inspector
☐ Design Professional
☐ _____

City of Kansas City, Missouri
Aviation Department
Pat Klein, Director

Project Manual

PROJECT NO. 62230566

TAXIWAY E AND TAXIWAY J REHABILITATION
KANSAS CITY INTERNATIONAL AIRPORT

BIDDER/ADDRESS

Company _____
Contact _____
Address _____
_____
Phone _____
Fax _____
Email _____

Project Manager: Mallie Hare
Telephone: 816-243-3037
Email: Mallie.Koehler@kcmo.org

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

CERTIFICATION PAGE

Project Number 62230566

Project Title Taxiway E and Taxiway J Rehabilitation

I am responsible for the following specifications and drawings:

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G03	GENERAL AIRPORT SITE PLAN
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LYNETTE MELLETT
MISSOURI PE NO. 2015000016

_____ (SEAL)

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I am responsible for the following specifications and drawings:

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ED02	ELECTRICAL DEMOLITION PLAN
ED03	ELECTRICAL DEMOLITION PLAN
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WALTER MAY
MISSOURI PE NO. 2015000572

_____ (SEAL)

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CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

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CITY OF FOUNTAINS
HEART OF THE NATION
KANSAS CITY
MISSOURI

INVITATION TO BID

Project Number: 62230566

Project Title: Taxiway E and Taxiway J Rehabilitation

Grant No. 3-29-0040-090 & 3-29-0040-091
Federal Aviation Administration Airport Improvement Program (AIP) Grant

---

The Aviation Department of Kansas City, Missouri will receive sealed Bids until 2:00 PM, on March 21, 2022 at Kansas City International (KCI) Airport, 601 Brasilia Avenue, Kansas City, Missouri 64153 for Project No. 62230566 – Taxiway E and Taxiway J Rehabilitation. Bids will be opened after that time in the Engineering Library. The Bid Opening is not open to the public.

Bidding Documents will be available online to all interested parties at the Kansas City Missouri Plan Room, http://www.kcmoplanroom.net. All addenda will be posted at this location. Any document or plan may be viewed or downloaded from this location. Bidding Documents may also be examined at the Aviation Department, 601 Brasilia Avenue, Kansas City, Missouri 64153, (816) 243-3031. Any procurement or contracting opportunity with the City can be viewed at http://www.kcmo.gov.

Bidders are requested to attend the Pre-Bid Conference on March 7, 2023, at 10 AM in the Engineering Conference Room located at Kansas City International (KCI) Airport, 601 Brasilia Avenue, Kansas City, Missouri 64153.

For persons with disabilities needing reasonable accommodations please contact Andrea Dorch at 816-513-1818 or Paul Pierce at 816-513-1824. If you need to use the Relay Missouri Center call 1-800-RELAY-MO (1-800-735-2966).

Title VI LEP *For persons with Limited English Proficiency (LEP), please contact the Airport Communications Center (ACC) at 816-243-4000. Interpreters are available.*

Disadvantaged Business Enterprise – 49 CFR Part 26: The requirements of 49 CFR part 26 apply to this contract. It is the policy of the City of Kansas City, Missouri to practice nondiscrimination based on race, color, sex or national origin in the award or performance of this contract. The Owner encourages participation by all firms qualifying under this solicitation regardless of business size or ownership.

The City of Kansas City, Missouri, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

Award of contract is also subject to the following Federal provisions:

- Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246 and DOL Regulation 41 CFR PART 60)
- Davis Bacon Act (DOL Regulation 29 CFR Part 5)
- Government-wide Debarment and Suspension and Government-wide Requirements for Drug-free Workplace (DOT Regulation 49 CFR PART 29)
- Foreign Trade Restriction: Denial of Public Works Contracts to Suppliers of Goods and Services of Countries that Deny Contracts to Suppliers of Goods and Services of Countries that Deny Procurement Market Access to U.S. Contractors (DOT Regulation 49 CFR PART 30)
- Buy American Preferences (TITLE 49 United States Code, CHAPTER 501)

Project Manager: Mallie Hare
Phone Number: (816) 243-3037
Fax Number: (816) 243-3071
E-mail: Mallie.Koehler@kcmo.org

CITY OF FOUNTAINS
CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

INSTRUCTIONS TO BIDDERS

Project Number 62230566

Project Title Taxiway E and Taxiway J Rehabilitation

Sealed Bids for Project No. 62230566 – Taxiway E and Taxiway J Rehabilitation will be received by the Aviation Department at 601 Brasilia Avenue, Kansas City, MO**.,** until 2:00 P.M., March 21, 2023 at which time bidding will be closed. The Bid Opening is not open to the public.

a. All Bids will be opened and read aloud. The Bid Envelope must contain all required submissions to be included with the Bid. No Bid may be withdrawn for a period of one hundred and twenty (120) days after the Bid is opened. Bid security shall likewise continue for the same one hundred and twenty (120) days unless earlier released by the City. The successful Bidder shall comply with all Bidding and contract requirements. Bids, once opened and read, may not be withdrawn without forfeiture of the Bid security.

b. All Bids shall be addressed to the Deputy Direct of Aviation, Planning & Engineering, shall state on the outside of the sealed Bid envelope "Bid Enclosed", title and Project number, and shall be deposited in the locked Bid box. All Bids must comply with the Bidding Requirements of Kansas City, Missouri (CITY).

c. Any Bid submitted in response to an Invitation for Bid that has been limited to those entities that are certified by the City as Small Local Business Enterprise (SLBE) or that have applied for certification as a SLBE at least 45 days prior to the date of this solicitation and who will have received that certification by the date on which the response is due shall be rejected and will not be considered if submitted by a bidder not meeting those criteria.

2. Consideration of Bids

a. The City will determine the Lowest, Responsible and Responsive Bid. The City may reject any or all bids. If the City rejects all Bids, the City may: (1) resolicit Bids following the City's normal solicitation procedure; or (2) solicit Bids only from those Bidders that submitted a Bid pursuant to the original solicitation; or (3) use an expedited Bid submission schedule with or without readvertising or issuing any other public notice when the City determines that the delay from the normal City solicitation procedure would not be in the City's best interests.

b. Alternates. If this solicitation includes Bid Alternates, the City, in its sole discretion, may include any, all or none of the Alternates in determining the Lowest, Responsible and Responsive Bid. In determining Lowest, Responsible and Responsive Bid, the City may include the Alternates in any combination and in any order or priority or choose none of the Alternates. The City may make this determination at any time after Bid Closing and prior to Contract award. The City will act in the best interest of the City in determining whether to include any, all or none of the Alternates and the combination and priority of any Alternates selected. If additional funding becomes available after Contract award, City may add any or all of the Alternates to the Contract by change order.

3. Evidence of Competency to Perform. Each bidder shall furnish with the bid satisfactory evidence of Bidder's competency to perform the proposed work. Such evidence of competency shall consist of the following:

a. Completed Form 00410.01 Experience Reference Summary for three projects of similar scope performed within the past 5 years including the name, address and telephone number of the contact person having knowledge of the project and the dollar value of the project.

b. Statement that, during the three (3) years immediately preceding the date of the Bid, Bidder has received no written notices of violations of any federal or state prevailing wage statute in which prevailing wage penalties were assessed against the Bidder or Bidder has been found in such but has made restitution to affected workmen and complied with any statutory penalty; and a statement that Bidder is current on payment of Federal and State income tax withholdings and unemployment insurance payments

c. Statement that Bidder participates in a training program that facilitates entry into the construction industry and which may include an on-the-job or in-house training program. By submitting its Bid, Bidder is agreeing to timely submit during the 48 hours after Bid opening an affidavit of describing such program and Bidder's participation.

d. Identify the following Key Personnel proposed for the Project. (**NOTE:** Key Personnel must be committed to the Project for its duration, and may not be removed or substituted without the City's prior written consent.)

   (1) GC Project Manager

   (2) On-Site Field Superintendent

   (3) QC/QA Manager

   (4) Safety Officer

e. For each of the Key Personnel, provide the following background information.

   (1) Years of employment with current employer

   (2) City of residence

   (3) Identify any other projects this person will be involved with concurrently with the Project, and state the time commitment for the Project and each other project

   (4) Discuss professional registrations, education, certifications, and credentials held by this person that are applicable to the Project

f. Discuss generally the tasks involved in the Project.

g. Illustrate clearly and concisely Bidder's understanding of the technical elements that must be addressed for successful completion of the Project.

h. Submit a bid schedule with anticipated milestones for the Project using Microsoft Project 2007 or later format.

i. Describe key issues that might affect the Project schedule and how Bidder proposes to address them.

j. Summary of the Project Safety Plan for the Project.

   (1) Describe how Bidder proposes to address any unique safety issues for the Project

   (2) Describe your safety record and environmental compliance record along with your Firm's OSHA reportable accident rates on recent comparable size projects

   (3) Statement of Bidder's Experience Modification Ratio (EMR)

k. Discuss Bidder's understanding of the traffic control required for the Project, if applicable, and how traffic control will impact the Project schedule. Discuss any major traffic control issues that need to be addressed and Bidder's proposed solutions.

l. Identify any other special issues or problems that are likely to be encountered. Outline the manner in which Bidder suggests resolving them.

m. Outline key community relations issues and how they might be resolved.

n. Describe any difficulties Bidder anticipates encountering in serving the City, in light of the City's status as a municipality and public entity. Explain how Bidder plans to manage them.

o. Summary of Bidder's Quality Assurance/Quality Control Plan for this project

p. Statement regarding all work performed two (2) years immediately preceding the date of the Bid, that contains either (a) a contract by contract listing of any written notices of violations of any federal, state or local DBE/MBE/WBE Program and any damages assessed; or (b) a statement that there have been no such written notices of violations or such penalties assessed; and a statement that Program requirements have been met.

q. Statement that the Bidder has not been rescinded or debarred from any bidding, contractual, procurement, or other such programs by federal, state or local entities.

r. Statement that Bidder is current on payment of Federal and State income tax withholdings and unemployment insurance payments

s. Statement of Bidder's litigation and/or arbitration history over the past five (5) years including final ruling.

t. Statement of Bidder's bond history over the past five (5) years including any incidences of failure to perform.

u. MBE / WBE past project performance and compliance with participation goals in comparable size commercial projects

v. Other.

4. Waiver of Bid Requirements The City Manager or his delegate at any time may waive any requirements imposed by this solicitation or by any City regulation when failure to grant the waiver will result in an increased cost to the City and the requirement waived would be waived for all Bidders for this solicitation and it is in the best interest of the City to grant the waiver. The City Council at any time may waive any requirements imposed in this solicitation by the City's Code of Ordinances when it finds failure to grant the waiver will result in an increased cost to the City and the waived requirement would be waived for all Bidders for this solicitation and it is in the best interest of the City to grant the waiver. The City reserves the right to waive any irregularities and/or formalities as deemed appropriate.

5. Late Bids Bids and modifications of Bids received after the exact hour and date specified for receipt will not be considered unless: (1) the Bid is sent via the U.S. Postal Service, common carrier or contract carrier, by a delivery method that guarantees the Bid will be delivered to the City prior to the submission deadline; or (2) if the Bid is submitted by mail, common carrier or contract carrier it is determined by the City that the late receipt was due solely to an error by the U.S Postal Service, common carrier or contract carrier; or (3) the Bid is timely delivered to the City but is at a different City location than that specified in this IFB; or (4) the City extends the time after the deadline for a force majeure event that could potentially affect any or all Bidders meeting the deadline.

6. Interpretations and Addenda All questions about the meaning or intent of the Bidding Documents may be directed to the Project Manager listed at the end of these Instructions to Bidders. Interpretations or clarifications considered necessary by the Project Manager in response to such questions will be issued by Addenda to all parties recorded as having received the Bidding Documents. Questions received less than ten (10) days prior to the date for opening of Bids may not be answered. Only answers issued by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect. Addenda may also be issued to modify the Bidding Documents as deemed advisable by the City.

7. Bid Security Requirements All Bids submitted must be accompanied by a Bid deposit in the amount of five percent (5%) of the base Bid which shall be in the form of a Bid Bond (on the form provided in these Bidding Documents), Cashier's Check, Letter of Credit, Certificate of Deposit or other instrument approved in advance by the City. Prior to submittal of the Bid the City Treasurer must approve both the

financial institution and text of a Letter of Credit. A Cashier's Check or a Certificate of Deposit shall be payable to the City Treasurer.

8. Forfeiture of Security If a Bidder fails or refuses to execute the Contract when requested by the City, any Bid security given to the City shall immediately become due and payable and forfeited to the City as liquidated damages.

9. Mistake in Bid Security By submitting a Bid, Bidder is agreeing to correct any mistakes on a Bid security submission when requested by the City. When such a mistake occurs and a Bidder fails or refuses to correct the mistake or execute the Contract when requested by the City, any Bid security shall be forfeited to the City and the Bidder shall also be subject to debarment and damages.

10. Bids that Exceed the Engineer's Estimate The City may offer the apparent Lowest, Responsible and Responsive Bidders the option of performing the Work for the Engineer's estimate for the Project with no changes to the Bid requirements or scope of the Project if the Bid is not more than five percent higher than the Engineer's estimate.

11. Post Bid Required Submissions The successful Bidder will be required to submit the following documents with the signed copies of the Bid Form/Contract or within the timeframes specified in the Notice of Intent to Contract letter. Copies of the City's forms that the successful Bidder will be required to sign are bound into this Project Manual for information:

*[**Specifier:** If this Project involves state or federal funding, check whether you need a Performance Bond in lieu of a Performance and Maintenance Bond and modify subparagraph a. accordingly, if you do.]*

a. Properly signed, dated, and sealed Performance and Maintenance Bond and Payment Bond;

b. Properly completed certificates of insurance;

c. Copies of licenses required by the City to do the Work;

d. A copy of CONTRACTOR's current Certificate of Good Standing or Fictitious Name Registration from the Missouri Secretary of State, or other acceptable proof; and

12. Indemnification – City of Kansas City. The contract documents contains a requirement that Contractor shall indemnify, defend and hold harmless the City and any of its agencies, officials, officers, or employees from and against all claims, damages, liability, losses, costs, and expenses, including reasonable attorneys' fees, arising out of or resulting from any acts or omissions in connection with the contract, caused in whole or in part by Contractor, its employees, agents, or Subcontractors, or caused by others for whom Contractor is liable, including negligent acts or omissions of the City, its agencies, officials, officers, or employees. The contract requires Contractor to obtain specified limits of insurance to insure the indemnity obligation. Contractor has the opportunity to recover the cost of the required insurance in the Contract Price by including the cost of that insurance in the Bid amount.

13. City's Buy American and Missouri Preference Policies It is the policy of the City that any manufactured goods or commodities used or supplied in the performance of any City contract or any subcontract thereto shall be manufactured or produced in the United States whenever possible. When Bids offer quality, price, conformity with specifications, term of delivery and other conditions imposed in the specifications that are equal, the City shall select the Bid that uses manufactured goods or commodities that are manufactured or produced in the United States. The City shall give preference to all commodities manufactured, produced, or grown within the State of Missouri and to all firms, corporations, or individuals doing business as Missouri firms, corporations or individuals, when quality is equal or better and delivered price is the same or less. It is the bidder's responsibility to claim these preferences.

14. Affirmative Action It is the policy of the City that any person or entity entering into a contract with the City, will employ applicants and treat employees equally without regard to their race, color, sex, religion, national origin or ancestry, disability, sexual orientation, gender identity or age. Bidder will be required to comply with the City's Affirmative Action ordinance if Bidder is awarded a contract from the City totaling more than $300,000.00. If you have any questions regarding the City's Affirmative Action requirements, please contact CREO KC at (816) 513-1836 or visit the City's website at www.kcmo.gov.

15. Tax Clearance Bidder will be required to furnish to CITY sufficient proof from City's Commissioner of Revenue, verifying that Bidder is in compliance with the license and tax ordinances administered by City's Revenue Division as a precondition to CITY making its first payment under any CONTRACT over $160,000.00. Bidder will also be required to obtain proof of City tax compliance from all of its Subcontractors prior to the Subcontractors performing any Work.

16. Substitutions or "Or-Equal" Items The procedure for submission of substitutions or "or-equal" items is set forth in the General Conditions and Supplementary Conditions.

17. Prevailing Wage Requirements The successful Bidder shall pay the prevailing hourly rate of wages as determined by the Missouri Annual Wage Order and/or Federal Wage Determination set forth in the Project Manual. In case of a conflict between Missouri and Federal wage rates, the higher rate shall apply.

Successful Bidder shall be required to use City's Internet web based Prevailing Wage Reporting System provided by City and protocols included in that software during the term of this Contract. When requested by the City, Bidder shall submit user applications to City's provided Prevailing Wage Reporting System for all applicable personnel and shall require subcontractors to submit same.

18. Contract Information Management System. Successful Bidder shall be required to use City's Internet web based Contract Information Management System/Project Management Communications Tool provided by City and protocols included in that software during the term of this Contract. Bidder/Proposer shall submit user applications to City's provided Contract Information Management System for all personnel, subcontractors or suppliers as applicable.

19. Disadvantaged Business Enterprises (DBE) Program Requirements To be eligible for this Project a Bidder must (1) meet the qualifications of the State of Missouri under the Missouri Regional Certification Committee (MRCC) Unified Certification Program (UCP). The name of the UCP, period of certification and certified scopes of work must appear on the certificate. (2) be certified and registered in the current DBE directory of:

http://contribute.modot.mo.gov/business/contractor_resources/External_Civil_Rights/mrcc.htm
http://www.ksdot.org/divadmin/civilrights/
https://kcmoCREO KC.mwdbe.com/FrontEnd/VendorSearchPublic.asp?TN=kcmoCREO KC&XID=186

For this Project the DBE goal is 22.35%. The DBE Forms and Instructions for Construction Projects are incorporated into these Bidding Documents and the Contract Documents.

20. Schedule of participating DBE's By submitting its Bid, Bidder is agreeing that for each DBE, the applicable value and percentage of labor, materials, and services involved in the Work as compared to the entire Contract price contained in this Bid is set forth in the attached schedule of Participating DBE's submitted by Bidder.

21. Workforce Program Requirements. City desires that minorities and women have a maximum opportunity to practice their trades on city construction projects. The minimum company-wide goals are a ten percent (12.7%) minority workforce and two percent (6.9%) women workforce. The City's CREO KC Forms and CREO KC Instructions for Construction Projects are incorporated into these Bidding Documents and the Contract Documents.

Successful Bidder shall be required to use City's Internet web based Workforce Program Reporting System provided by City and protocols included in that software during the term of this Contract. When requested by the City, Bidder shall submit user applications to City's provided Workforce Program Reporting System for all applicable personnel and shall require subcontractors to submit same.

22. Federal Requirements for Federally Funded Projects.
This Project is being partially funded under the Federal Aviation Administration (FAA) Airport Improvement Program (AIP). Contractors must comply with specific federally required provisions as listed herein and contained in the contract documents. The following federal provisions are incorporated in this solicitation by reference:
1. Affirmative Action (41 CFR part 60-4; Executive Order 11246)
2. Buy American Preference (49 USC § 50101)
3. Civil Rights – Title VI Assurance (49 USC § 47123; FAA Order 1400.11)

4. Davis-Bacon Act (2 CFR § 200, Appendix II(D); 29 CFR Part 5)
5. Debarment and Suspension (2 CFR part 180 (Subpart C), 2 CFR part 1200, DOT Order 4200.5)
6. Disadvantaged Business Enterprise (49 CFR part 26)
7. Trade Restriction (49 USC § 50104; 49 CFR part 30)
8. Lobbying and Influencing Federal Employees (31 USC § 1352 – Byrd Anti-Lobbying Amendment; 2 CFR part 200, Appendix II(J); 49 CFR part 20, Appendix A)
9. Procurement of Recovered Materials (2 CFR § 200.322; 40 CFR part 247; Solid Waste Disposal Act)

23. TITLE VI SOLICITATION NOTICE:
The City of Kansas City, Missouri, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 USC §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders or offerors that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

24. NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION to ENSURE EQUAL EMPLOYMENT OPPORTUNITY

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Timetables

Goals for minority participation for each trade: 12.7%

Goals for female participation in each trade: 6.9%

These goals are applicable to all of the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a) and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs (OFCCP) within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be

performed. Guidelines for Contract Provisions for Obligated Sponsors and Airport Improvement Program Projects Issued on June 19, 2018 Page 4

4. As used in this notice and in the contract resulting from this solicitation, the "covered area" is Missouri, Platte County, Kansas City.

25. Subcontractors, Suppliers and Others

a. If the Contract Documents require the identity of certain Subcontractors, Suppliers and other persons and organizations (including those who are to furnish the principal items of material and equipment) to be submitted to City, the apparent Lowest, Responsible and Responsive Bidder, and any other Bidder so requested, shall submit to City a list of all such Subcontractors, Suppliers and other persons and organizations proposed for those portions of the Work for which such identification is required. An experience statement shall accompany such list with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier or organization if requested by City. If City has reasonable objection to any proposed Subcontractor, Supplier or other person or organization, City may request the apparent Lowest, Responsible and Responsive Bidder to submit an acceptable substitute without an increase in Bid price.

b. By submitting its Bid, Bidder agrees that it has read and understands all the provisions of General Condition No. 6.07, Concerning Subcontractors, Suppliers and Others, and that it will comply with all those provisions including but not limited to mandatory mediation of disputes and the prohibition against paid-if-paid and paid-when-paid contract clauses. It is the City's expectation that all Subcontractors and Suppliers will be treated fairly and in good faith by the successful Bidders and that the successful Bidder will make all reasonable efforts to resolve contract disputes with a Subcontractor or Supplier in a prompt and fair manner. If the City is notified by a Subcontractor or Supplier of a contract claim with the successful Bidder, City will notify the successful Bidder and will request prompt resolution of the claim. City will provide any such Subcontractor or Supplier information regarding mandatory mediation as well as a copy of the Payment Bond. City may notify the Surety that City has taken cognizance of such claim.

c. In accordance with the Missouri Prompt Payment Act, City reserves the right to withhold payment(s) in good faith from the successful Bidder due to: i)the successful Bidder's failure to comply with any material provision of the contract; ii)third party claims filed or reasonable evidence that a claim will be filed; iii)the successful Bidder's failure to make timely payments for labor, equipment or materials; or iv)for damage to a Subcontractor or Supplier.

d. By submitting its Bid, Bidder agrees it will not deny any Subcontractor subcontracting opportunities solely because the Subcontractor is not a signatory to collective bargaining agreements with organized labor.

e. The provisions of GC 6.07 are a material term of the Contract with the City and failure by the successful Bidder to comply with the provisions of this section will be taken into consideration by City in making the determination of Lowest, Responsible and Responsive bidder in any subsequent City contracts.

26. Pre-Bid Conference The Aviation Department will hold a pre-Bid conference on March 7, 2023, at 10 AM in the Engineering Conference Room, located at 601 Brasilia Ave., Kansas City, Missouri 64153. Attendance at the pre-Bid conference is encouraged for all Bidders on this Project.

27. On-Site Inspection There will be no on-site inspection for this project.

28. Signatures Each copy of the Bid Form/Contract must be signed and properly dated by the following, as applicable:

Limited Liability Company:

□ a member of the limited liability Company authorized to sign on behalf of the company.

Partnership:

□ a partner authorized to sign on behalf of the partnership.

Sole Proprietor:

□ the proprietor.

Joint Venture:

□ the parties to the Joint Venture authorized to sign on behalf of each party to the Joint Venture, or a person authorized by each party to the Joint Venture to sign on behalf of all parties to the Joint Venture.

Corporation:

□ a corporate office authorized to sign on behalf of the corporation. Corporation's seal must be attached to the signature.

29. Forward all questions in writing to the following Project Manager and Contract Administrator. Questions received less than five (5) days prior to the Bid Date may not be answered. Interpretations or clarifications considered necessary by the Project Manager in response to such questions will be issued by Addenda to all Bidders. Oral or other interpretations or clarifications shall be without legal effect, even if made at a Pre-Bid Meeting.

Mallie Hare, Project Manager
Aviation Department
601 Brasilia Avenue
Kansas City, MO 64153
Phone: (816) 243-3037
Fax: (816) 243-3071
E-mail: Mallie.Koehler@kcmo.org

Sara Hurst, Contract Administration
Aviation Department
601 Brasilia Avenue
Kansas City, MO 64153
Phone: (816) 243-3052
Fax: (816) 243-3071
E-mail: Sara.Hurst@kcmo.org



For persons with disabilities needing reasonable accommodations please contact Andrea Dorch at 816-513-1818 or Paul Pierce at 816-513-1824. If you need to use the Relay Missouri Center call 1-800-RELAY-MO (1-800-735-2966).

Ideker, Inc.
4614 South 40th Street
St. Joseph MO, 64503
email: cody@ideker.net
Ph: 816-364-3970

EXPERIENCE AND REFERENCE SUMMARY

Project Number: 62230566

Project Title: Taxiway E and Taxiway J Rehabilitation

NO.	PROJECT & LOCATION	OWNER NAME & ADDRESS CONTACT & PHONE NUMBER	PROJECT DURATION & DATE COMPLETED	$ VALUE
1.	3506 KCI Rehab Rwy 1R-19L City of Kansas City, MO	City of Kansas City Aviation Dept Lapondzia Jones Kansas City, MO 64153 816-243-3057	1 calendar year December 2016	$19,639,895
2.	3608 KCI Rehab RWY 1R-19L Phase 2 City Of Kansas City, MO	City of Kansas City Aviation Dept Lapondzia Jones Kansas City, MO 64153 816-243-3057	2 year 7 months December 2017	$16,153,965
3.	3705 KCI Mill & Overlay Runway 9-27 City Of Kansas City, MO	City of Kansas City Aviation Dept Lapondzia Jones Kansas City, MO 64153 816-243-3057	2 Months September 2016	$1,579,264
4.	3604 Project #CS150011-Resurf KC St 15-1 City of Kansas City, MO	City of Kansas City Public Works 4721 Coal Mine Road Kerry Kanatzar Kansas City, MO 64130 816-513-4713	1 calendar year December 2015	$ 2,216.708
5.	3719 Contract #161216-C01 RT I-29 Clay & Platte, MO	MoDot 1900 NW Cookingham Drive Courtney Glazier Kansas City, MO 64155 816-437-3625	11 months November 2017	$14,120,089
6.	3720 Contract# 170217-C01 RT 35 Clay County MO	MoDot 1900 NW Cookingham Drive Courtney Glazier Kansas City, MO 64155 816-437-3625	1 year 1 month June 2018	$ 9,814,599
7.	3808 Contract#171020-C01 RT I-49 Cass & Jackson Counties MO	MoDot 9400 East 43rd Street Heather Drake Kansas City, MO 64133 816-353-8353	1 Year November 2018	$4,805,246
8.	3809 Contract#171215-C01 RT 71 Jackson County MO	MoDot 9400 East 43rd Street Heather Drake Kansas City, MO 64133 816-353-8353	11 Months November 2018	$6,303,449
9.	3714 Contract#161118-C07 RT 24 Jackson County MO	MoDot 9400 East 43rd Street Heather Drake Kansas City, MO 64133 816-353-8353	11 Months December 2018	$2,776,436.29

Certification of Compliance with FAA Buy American Preference
Construction Projects

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with its proposal. The bidder or offeror must indicate how it intends to comply with 49 USC § 50101, BABA and other related Made in America Laws, U.S. statutes, guidance, and FAA policies, by selecting one of the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (i.e., not both) by inserting a checkmark (✓) or the letter "X".

☑ Bidder or offeror hereby certifies that it will comply with 49 USC § 50101, BABA and other related U.S. statutes, guidance, and policies of the FAA by:

a) Only installing iron, steel and manufactured products produced in the United States;

b) Only installing construction materials defined as: an article, material, or supply – other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber or drywall that have been manufactured in the United States.

c) Installing manufactured products for which the Federal Aviation Administration (FAA) has issued a waiver as indicated by inclusion on the current FAA Nationwide Buy American Waivers Issued listing; or

d) Installing products listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation Subpart 25.108.

By selecting this certification statement, the bidder or offeror agrees:

a) To provide to the Airport Sponsor or the FAA evidence that documents the source and origin of the iron, steel, and/or manufactured product.
b) To faithfully comply with providing U.S. domestic products.
c) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.
d) Certify that all construction materials used in the project are manufactured in the U.S.

☐ The bidder or offeror hereby certifies it cannot comply with the 100 percent Buy American Preferences of 49 USC § 50101(a) but may qualify for a Type 3 or Type 4 waiver under 49 USC § 50101(b). By selecting this certification statement, the apparent bidder or offeror with the apparent low bid agrees:

a) To the submit to the Airport Sponsor or FAA within 15 calendar days of being selected as the responsive bidder, a formal waiver request and required documentation that supports the type of waiver being requested.
b) That failure to submit the required documentation within the specified timeframe is cause for a non-responsive determination that may result in rejection of the proposal.
c) To faithfully comply with providing U.S. domestic products at or above the approved U.S. domestic content percentage as approved by the FAA.
d) To furnish U.S. domestic product for any waiver request that the FAA rejects.

e) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

Required Documentation

Type 2 Waiver (Nonavailability) - The iron, steel, manufactured goods or construction materials or manufactured goods are not available in sufficient quantity or quality in the United States. The required documentation for the Nonavailability waiver is

a) Completed Content Percentage Worksheet and Final Assembly Questionnaire

b) Record of thorough market research, consideration where appropriate of qualifying alternate items, products, or materials including;

c) A description of the market research activities and methods used to identify domestically manufactured items capable of satisfying the requirement, including the timing of the research and conclusions reached on the availability of sources.

Type 3 Waiver – The cost of components and subcomponents produced in the United States is more than 60 percent of the cost of all components and subcomponents of the "facility/project." The required documentation for a Type 3 waiver is:

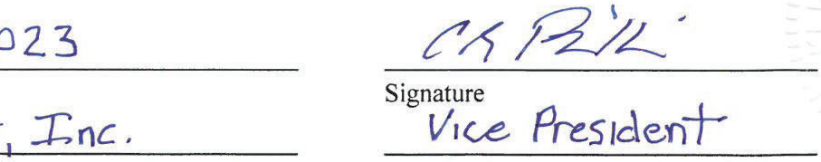
a) Completed Content Percentage Worksheet and Final Assembly Questionnaire including;
b) Listing of all manufactured products that are not comprised of 100 percent U.S. domestic content (excludes products listed on the FAA Nationwide Buy American Waivers Issued listing and products excluded by Federal Acquisition Regulation Subpart 25.108; products of unknown origin must be considered as non-domestic products in their entirety).
c) Cost of non-domestic components and subcomponents, excluding labor costs associated with final assembly and installation at project location.
d) Percentage of non-domestic component and subcomponent cost as compared to total "facility" component and subcomponent costs, excluding labor costs associated with final assembly and installation at project location.

Type 4 Waiver (Unreasonable Costs) - Applying this provision for iron, steel, manufactured goods or construction materials would increase the cost of the overall project by more than 25 percent. The required documentation for this waiver is:

a) A completed Content Percentage Worksheet and Final Assembly Questionnaire from
b) At minimum two comparable equal bids and/or offers;
c) Receipt or record that demonstrates that supplier scouting called for in Executive Order 14005, indicates that no domestic source exists for the project and/or component;
d) Completed waiver applications for each comparable bid and/or offer.

False Statements: Per 49 USC § 47126, this certification concerns a matter within the jurisdiction of the Federal Aviation Administration and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code.

3/21/2023
Date


Signature

Ideker, Inc.
Company Name

Vice President
Title

Bidder: Ideker, Inc.

CITY OF FOUNTAINS
HEART OF THE NATION
KANSAS CITY
MISSOURI

BID FORM/CONTRACT

Project Number: 62230566

Project Title Taxiway E and Taxiway J Rehabilitation

Grant No. 3-29-0040-090 and 3-29-0040-091
Federal Aviation Administration Airport Improvement Program (AIP) Grant

1. Bidder, having examined the Bidding Documents, related documents and the Site of the Work, and being familiar with all the conditions affecting the construction of the proposed Work, including Laws and Regulations and the availability of materials and supplies, agrees, if this Bid is selected by CITY, this Bid Form/Contract will become the Contract between Bidder and CITY for Bidder to furnish all labor and materials, equipment and services necessary for the proper completion of the Work in accordance with the Contract Documents, including general construction work at the price(s) stated below, which stated sums include fees and all other charges applicable to materials, appliances, labor and all things subject to and upon which other charges may be levied.

2. Bidder agrees the Contract Documents will comprise the entire agreement between CITY and Bidder. The Contract Documents are identified in the General Conditions and are incorporated into and made part hereof this Bid Form/Contract by reference.

3. Bidder agrees that if this Bid Form/Contract is executed by CITY, Bidder's offer is accepted and this Bid Form/Contract that incorporates all other Contract Documents shall constitute the Contract between the parties. Bidder authorizes the CITY to fill in the Contract Price on this Bid Form/Contract in accordance with Bidder's Bid. Bidder agrees that this Bid Form/Contract may be executed in one or more counterparts, each of which will be deemed an original copy of this Bid Form/Contract and all of which, when taken together, will be deemed to constitute one and the same Bid Form/Contract. This Bid Form/Contract shall be effective upon the execution of counterparts by both parties, notwithstanding that both parties may not sign the same counterpart. The parties' signatures transmitted by facsimile or by other electronic means shall be proof of the execution of this Bid Form/Contract and shall be acceptable in a court of law. A copy of this Bid Form/Contract shall constitute an original and shall be acceptable in a court of law.

4. The Bid Price(s) shall be shown in numeric figures only.

   TOTAL BASE BID IN NUMERIC FIGURES $ 14,979,967.10

5. The undersigned Bidder has given CITY'S Project Manager written notice of all conflicts, errors or discrepancies that it has discovered in the Contract Documents and the written resolution thereof by the Project Manager or by the DESIGN PROFESSIONAL is acceptable to Bidder.

6. The undersigned Bidder agrees that this Bid shall remain subject to selection by CITY, and may not be withdrawn for one hundred and twenty (120) days after the day Bids are opened.

7. The undersigned Bidder certifies that this Bid contains no modifications, deviations, riders or qualifications.

Bidder: Ideker, Inc.

8. As evidence of good faith in submitting this proposal, the undersigned encloses a bid guaranty in the form of a certified check or bid bond in the amount of 5% of the bid price. The BIDDER acknowledges and accepts that refusal or failure to accept award and execute a contract within the terms and conditions established herein will result in forfeiture of the bid guaranty to the CITY as a liquidated damage.

9. The BIDDER acknowledges and accepts the CITY'S right to reject any or all bids and to waive any minor informality in any Bid or solicitation procedure.

10. The undersigned agrees that upon written notice of award of contract, he or she will execute the contract within thirty (30) days of the notice-of-award and furthermore and provide executed payment and performance bonds within fifteen (15) days from the date of contract execution. The undersigned accepts that failure to execute the contract and provide the required bonds within the stated timeframe shall result in forfeiture of the bid guaranty to the CITY as a liquidated damage.

11. Time of Performance: By submittal of this proposal, the undersigned acknowledges and agrees to commence work within ten (10) calendar days of the date specified in the written "Notice-to-Proceed" as issued by the CITY. The undersigned further agrees to complete the Project within 155 Calendar Days from the commencement date specified in the Notice-to-Proceed.

12. The undersigned acknowledges and accepts that for each and every Calendar day the project remains incomplete beyond the contract time of performance, the Contractor shall pay the non-penal amount of $2,000 per Calendar day as a liquidated damage to the CITY.

13. The Bidder shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of this Federally-assisted contract. In accordance with 49 CFR Part 26.45, the sponsor has an overall participation goal for small business concerns owned and controlled by certified socially and economically disadvantaged enterprise (DBE). The bidder shall make and document good faith efforts, as defined in Appendix A of 49 CFR Part 26, to assist the sponsor in meeting its overall DBE goal.

14. The BIDDER, by submission of a proposal, acknowledges that award of this contract is subject to the provisions of the David Bacon Act. The BIDDER accepts the requirement to pay prevailing wages for each classification and type of worker as established in the attached wage rate determination as issued by the United States Department of Labor. The BIDDER further acknowledges and accepts their requirement to incorporate the provision to pay the established prevailing wages in every subcontract agreement entered into by the Bidder under this project.

15. By submitting its bid, Bidder warrants that if its bid should exceed $300,000.00 and Bidder employs fifty (50) or more people, Bidder has an affirmative action program in place and will maintain the affirmative action program in place for the duration of its contract with the City. Bidder further warrants that it will comply with the affirmative action requirements contained in the General Conditions as incorporated by reference into this Bid Form/Contract.

16. Compliance Reports (41 CFR Part 60-1.7): Within 30 days after award of this contract, the Contractor/Subcontractor shall file a compliance report (Standard Form 100) if s/he has not submitted a complete compliance report within 12 months proceeding the date of award. This report is required if the Contractor/Subcontractor meets all of the following conditions:

    1. Contractors/Subcontractors are not exempt based on 41 CFR 60-1,5.
    2. Has 50 or more employees.
    3. Is a prime contractor or first tier subcontractor.

4. There is a contract, subcontract, or purchase order amounting to $50,000 or more

17. RESERVED

18. Form(s) 00412 Unit Prices contain prices included in the Base Bid, and are incorporated into this Bid. Form(s) must be completed and returned with this Bid.

19. RESERVED

20. The undersigned Bidder acknowledges receipt of the following addenda listed by number and date appearing on each addendum:

Addendum Number	Dated	Addendum Number	Dated
(1)	(2/28/23)	( )	( )
(2)	(3/9/23)	( )	( )
(3)	(3/13/23)	( )	( )

21. **CERTIFICATIONS BY BIDDER**

A. The undersigned hereby declares and certifies that the only parties interested in this proposal are named herein and that this proposal is made without collusion with any other person, firm or corporation. The undersigned further certifies that no member, officer or agent of CITY'S has direct or indirect financial interest in this proposal.

B. **Certification of Non-Segregated Facilities**: (41 CFR Part 60-1.8)

The BIDDER, as a potential federally-assisted construction contractor, certifies that it does not maintain or provide, for its employees, any segregated facilities at any of its establishments and that it does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The BIDDER certifies that it will not maintain or provide, for its employees, segregated facilities at any of its establishments and that it will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Bidder agrees that a breach of this certification is a violation of the Equal Opportunity Clause, which is to be incorporated in the contract.

As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated on the basis of race, color, religion, or national origin because of habit, local custom, or any other reason. The Bidder agrees that (except where it has obtained identical certifications from proposed subcontractors for specific time periods) it will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause and that it will retain such certifications in its files.

C. **Trade Restriction Certification**: (49 CFR Part 30)

The Bidder, by submission of an offer certifies that it:

1. is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms published by the Office of the United States Trade Representative (USTR);
2. has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list;
3. has not procured any product nor subcontracted for the supply of any product for use on the project that is produced in a foreign country on said list.

D. **Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion:** (49 CFR Part 29)

The Bidder certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency. It further agrees by submitting this proposal that it will include this clause without modification in all lower tier transactions, solicitations, proposals, contracts, and subcontracts. Where the Bidder or any lower tier participant is unable to certify to this statement, it shall attach an explanation to this solicitation/proposal.

E. **Buy American Certification:** (Title 49 U.S.C. Chapter 501)

As a condition of bid responsiveness, the bidder must show how it intends to comply with the Buy American preferences established under Title 49 U.S.C. Section 50101. Bidder must complete the attached Buy American certification. If the bidder requests a permissible waiver to the Buy America requirements, the Bidder identified as with the successful bid must submit a formal waiver request and component cost calculation within the prescribed time identified on the Buy America certification.

Business Entity Type:

(✓) Missouri Corporation
(__) Foreign Corporation
(__) Fictitious Name Registration
(__) Sole Proprietor
(__) Limited Liability Company
(__) Partnership
(__) Joint Venture
(__) Other: (Specify) _____

BIDDER

Legal name & address of Bidder, person firm, partnership, corporation, or association submitting Bid:

Ideker, Inc.
4614 South 40th Street
St. Joseph, MO 64503

Phone No: 816-364-3970
Cell No: 816-390-5670
Facsimile No: 816-364-4783
Bidder's E-Mail: cody@ideker.net

Federal ID. No. 43-0977060

Bidder: Ideker, Inc.

I hereby certify that I have authority to execute this document on behalf of Bidder, person, firm, partnership, corporation or association submitting Bid.

By: _____
(Signature)

Cody Phillips
(Print Name)

Title: Vice President

Date: 3/21/2023

(Attach corporate seal if applicable)

Bidder: Ideker, Inc.

ACCEPTANCE OF BID

CITY, by executing this Bid Form/Contract, hereby accepts Bidder's Bid and this Bid Form/Contract that incorporates all other Contract Documents shall constitute the Contract between the Parties. CITY shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents a maximum amount of Fourteen Million Nine Hundred Seventy Nine Thousand Nine Hundred Sixty Seven and 10/100 Dollars, ($ 14,979,967.10). The Contract Price includes

00412 Unit Prices, included in the Bid, a copy of which is attached

By executing this Bid Form/Contract, CITY accepts Bidder's offer for the Contract Price stated above and this Bid Form/Contract that incorporates all other Contract Documents shall constitute the Contract between the parties.

City of Kansas City, Missouri (OWNER or CITY)

Approved as to form:

Assistant City Attorney

I hereby certify that there is a balance, otherwise unencumbered, to the credit of the appropriation to which the foregoing expenditure is to be charged, and a cash balance, otherwise unencumbered, in the treasury, to the credit of the fund from which payment is to be made, each sufficient to meet the obligation hereby incurred.

Director of Finance (Date)

Bidder: IdeKer, Inc.

CITY OF FOUNTAINS
HEART OF THE NATION
KANSAS CITY
MISSOURI

UNIT PRICES

PROJECT NO. 62230566

PROJECT TITLE: TAXIWAY E AND TAXIWAY J REHABILITATION

NOTE: IN THE EVENT OF DISCREPANCY, UNIT PRICE SHALL GOVERN.

ITEM NO.	UNIT	QUANTITY	ITEM DESCRIPTION	UNIT PRICE	EXTENSION
C-100-1	LS	1	CONTRACTOR QUALITY CONTROL PROGRAM (CQCP)	$116,000.00	$116,000.00
C-102-1	AC	16	TEMPORARY SEEDING AND MULCHING	$445.00	$7,120.00
C-105-1	LS	1	MOBILIZATION	$1,258,000.00	$1,258,000.00
C-106-1	LS	1	MAINTENANCE OF TRAFFIC	$594,000.00	$594,000.00
P-101-1	SY	2900	15" CONCRETE PAVEMENT REMOVAL	$15.00	$43,500.00
P-101-2	SY	66100	±17" CONCRETE PAVEMENT REMOVAL	$15.00	$991,500.00
P-101-3	SY	16850	±4" ASPHALT/±13" CONCRETE PAVEMENT REMOVAL	$14.00	$235,900.00
P-101-4	SY	26400	±9" ASPHALT PAVEMENT REMOVAL	$12.00	$316,800.00
P-101-5	SY	1250	2" ASPHALT COLD MILLING	$11.00	$13,750.00
P-101-6	LF	1000	CRACK REPAIR	$5.00	$5,000.00
P-101-7	SY	1000	PARTIAL DEPTH LEAN CONCRETE BASE REPAIR	$57.00	$57,000.00
P-101-8	SY	1000	FULL DEPTH LEAN CONCRETE BASE REPAIR	$80.00	$80,000.00
P-151-1	LS	1	CLEARING AND GRUBBING	$45,000.00	$45,000.00
P-209M-1	SY	26300	2" MIN. VARIABLE CRUSHED AGGREGATE BASE COURSE	$9.00	$236,700.00
P-401-1	TN	200	2" MIN. VARIABLE ASPHALT SURFACE COURSE	$205.00	$41,000.00
P-501-1	SY	23000	6" PORTLAND CEMENT CONCRETE PAVEMENT	$36.00	$828,000.00
P-501-2	SY	3300	6" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT	$45.00	$148,500.00
P-501-3	SY	2300	15" PORTLAND CEMENT CONCRETE PAVEMENT	$119.00	$273,700.00
P-501-4	SY	600	15" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT	$140.00	$84,000.00
P-501-5	SY	70900	±17" PORTLAND CEMENT CONCRETE PAVEMENT	$98.85	$7,008,465.00
P-501-6	SY	12200	±17" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT	$112.00	$1,366,400.00
P-603-1	GAL	200	EMULSIFIED ASPHALT TACK COAT	$10.00	$2,000.00
P-620-1	SF	120000	RUNWAY AND TAXIWAY MARKINGS	$0.90	$108,000.00
P-620-2	SF	145000	TEMPORARY PAVEMENT MARKINGS	$0.45	$65,250.00
P-620-3	SF	37500	PERMANENT PAVEMENT MARKING REMOVAL	$1.15	$43,125.00
D-751-1	EA	18	UNDERDRAIN CLEANOUT	$500.00	$9,000.00
T-901-1	AC	13	SEEDING	$1,775.00	$23,075.00
T-904-1	SY	13050	SODDING	$6.50	$84,825.00
T-908-1	AC	13	MULCHING	$1,775.00	$23,075.00
L-108-5.1-1	LF	18000	UNDERGROUND CABLE, #6, 5KV, L-824 TYPE C, INSTALLED IN CONDUIT	$4.10	$73,800.00
L-110-5.1-1	LF	850	CONCRETE ENCASED UNDERGROUND CONDUIT, 2" PVC	$19.90	$16,915.00
L-125-5.1-1	EA	18	REMOVE EXISTING FIXTURE OR BLANK COVER	$47.00	$846.00
L-125-5.1-2	EA	182	REMOVE EXISTING FIXTURE OR BLANK COVER AND EXISTING BASE CAN	$2,085.90	$379,633.80
L-125-5.1-3	EA	9	INSTALL BLANK COVER ON EXISTING BASE CAN	$185.80	$1,672.20
L-125-5.1-4	EA	3	INSTALL NEW LED, L-852, UNIDIRECTIONAL TAXIWAY CENTERLINE FIXTURE, ON NEW L-868-B GALVANIZED BASE (INCLUDES FIXTURES, BASE CAN, TRANSFORMER AND BASE PLATE)	$3,947.10	$11,841.30
L-125-5.1-5	EA	27	REINSTALL EXISTING L-852, UNIDIRECTIONAL TAXIWAY CENTERLINE FIXTURE, ON NEW L-868-B GALVANIZED BASE (BASE CAN AND BASE PLATE)	$2,062.90	$55,698.30
L-125-5.1-6	EA	4	REINSTALL EXISTING LED, ELEVATED TAXIWAY EDGE LIGHT FIXTURE ON NEW L-867-B GALVANIZED BASE (BASE CAN AND BASE PLATE)	$1,599.10	$6,396.40
L-125-5.1-7	EA	141	INSTALL NEW LED, ELEVATED TAXIWAY EDGE LIGHT FIXTURE, ON NEW L-867-B GALVANIZED BASE (INCLUDES FIXTURES, BASE CAN, TRANSFORMER AND BASE PLATE)	$2,197.50	$309,847.50
L-125-5.1-8	EA	9	INSTALL NEW LED, ELEVATED TAXIWAY EDGE LIGHT FIXTURE ON EXISTING BASE CAN	$942.40	$8,481.60
L-125-5.1-9	EA	60	REPLACE BROKEN BOLTS	$102.50	$6,150.00
TOTAL UNIT PRICES EXTENSION HERE AND ON BID FORM 00410 AS TOTAL BASE BID				$14,979,967.10	

Note: May be printed for manual fill-in or filled in on electronic excel spreadsheet version.

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

BID BOND

Project Number 62230566

Project Title Taxiway E and Taxiway J Rehabilitation

Bond Number Bid Bond

KNOW ALL MEN BY THESE PRESENTS: That Ideker, Inc. of P.O. Box 7140, St. Joseph, MO 64507, as Principal, and Liberty Mutual Insurance Company as Surety, hereby bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents unto KANSAS CITY, MISSOURI, a constitutionally chartered municipal corporation, as Obligee, in the sum of

Five Percent of Amount Bid Dollars ($ 5%), lawful money of the United States.

WHEREAS, Principal is herewith submitting its Bid to enter into a contract with Kansas City for the above referenced project,

NOW, THEREFORE the condition of this obligation is such that if the Principal is awarded the contract the Principal will, within the time required, enter into a contract and give a good and sufficient surety bonds to secure the performance of the terms and conditions of the contract and for the prompt payment of all labor and material furnished in the prosecution thereof as required by the contract documents, then this obligation shall be void; otherwise the Principal and Surety will immediately pay unto the Obligee the full amount of this bond as liquidated damages for failure to fulfill the conditions of this obligation, but in no event shall the Surety's liability exceed the penal sum hereof.

Signed, sealed and delivered this 21st day of March, 2023.

BIDDER AND PRINCIPAL

Name, address and facsimile number of Bidder and Principal

Ideker, Inc.
P.O. Box 7140
St. Joseph, MO 64507
816.364.4783

I hereby certify that I have authority to execute this document on behalf of Bidder and Principal.

By: [signature]

Title: Vice President

(Attach corporate seal if applicable)

SURETY

Name, address and facsimile number of Surety:

Liberty Mutual Insurance Company

175 Berkeley Street

Boston, MA 02116

617.574.5955

I hereby certify that (1) I have authority to execute this document on behalf of Surety; (2) Surety has an A.M. Best rating of A- or better; (3) Surety is named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (most current revision) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury; and (4) Surety is duly licensed to issue bonds in the State of Missouri and in the jurisdiction in which the Project is located.

By: 

Title: Sandra Burnett Attorney-in-Fact

Date: March 21, 2023



(Attach seal and Power of Attorney)

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated. Not valid for mortgage, note, loan, letter of credit, bank deposit, currency rate, interest rate or residual value guarantees. For bond and/or Power of Attorney (POA) verification inquiries, please call 610-832-8240 or email HOSUR@libertymutual.com.

Liberty Mutual. SURETY

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint Sandra Burnett of the city of Kansas City, state of MO its true and lawful attorney-in-fact, with full power and authority hereby conferred to sign, execute and acknowledge the following surety bond:

Principal Name: Ideker, Inc.

Obligee Name: Kansas City, Missouri

Surety Bond Number: Bid Bond **Bond Amount:** See Bond Form

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 12th day of March, 2021.

The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
West American Insurance Company

By: _____
David M. Carey, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 12th day of March, 2021, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.

Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2025
Commission number 1126044
Member, Pennsylvania Association of Notaries

By: _____
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of Liberty Mutual Insurance Company, The Ohio Casualty Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS – Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts – SECTION 5. Surety Bonds and Undertakings. Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, of Liberty Mutual Insurance Company, The Ohio Casualty Insurance Company, and West American Insurance Company do hereby certify that this power of attorney executed by said Companies is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 21st day of March, 2023.

By: _____
Renee C. Llewellyn, Assistant Secretary

AFFIRMATIVE ACTION PROGRAM AFFIDAVIT

(required for any contractor with 50 or more employees and
a contract with the City of Kansas City, Missouri, in excess of $300,000.00)

STATE OF Missouri)
) ss
COUNTY OF Buchanan)

On this 21st day of March, 2023, before me appeared Cody Phillips, personally known by me or otherwise proven to be the person whose name is subscribed on this affidavit and who, being duly sworn, stated as follows:

I am of sound mind, capable of making this affidavit, and personally swear or affirm that the statements made herein are truthful to the best of my knowledge. I am the Vice President (title) of Ideker, Inc. (business entity) and I am duly authorized, directed or empowered to act with full authority on behalf of the business entity in making this affidavit.

I hereby swear or affirm that [*enter business entity name*] has an affirmative action program (the "Program") in place and will maintain the Program for the duration of its contract with the City of Kansas City, Missouri ("City") as required by Chapter 3 of the City's Code of Ordinances.

I hereby additionally swear or affirm that attached hereto is a true copy of the Program.

I hereby additionally swear or affirm that the business entity shall not discriminate against any employee or applicant for employment because of race, color, sex, religion, national origin or ancestry, disability, sexual orientation, gender identity or age in a manner prohibited by Chapter 3 of the City's Code of Ordinances.

I acknowledge that I am signing this affidavit as the free act and deed of the business entity and that I am not doing so under duress.

Affiant's signature

Subscribed and sworn to before me this 21 day of March, 2023.

Notary Public

My Commission expires: 03/06/2026

CIJAY SMITH
Comm. Exp. 03/06/2026
NOTARY PUBLIC NOTARY SEAL #22010373
Buchanan County
STATE OF MISSOURI

Ideker, Inc.
EARTH MOVING - CONCRETE - ASPHALT

January 1, 2022

EQUAL EMPLOYMENT OPPORTUNITY POLICY
AFFIRMATIVE ACTION PLAN

The employment policies and practices of Ideker, Inc. are to recruit and to hire employees without discrimination because of race, creed, color, religion, sex, national origin, age, handicap, or Vietnam Veterans status, and to treat them equally with respect to compensation and opportunities for advancement, including upgrading, promotion, and transfer.

The company submits this plan and has instituted the steps necessary, as set forth in the plan, to assure compliance with the Civil Rights Act of 1964, Executive Order 11246, and additional orders that pertain to this program and to reaffirm its continued commitment to a program of equal employment opportunity and merit employment policies.

It agrees to assert leadership within the community and to put forth the maximum effort to achieve full employment and utilization of the capabilities and productivity of all our citizens without regard to race, creed, color, religion, sex, national origin, age, handicap, or Vietnam Veteran status.

This company further recognizes that the effective application of a policy of merit employment involves more than just a policy statement and will, therefore, undertake a program of affirmative action to make known that Equal Employment Opportunities are available on the basis of individual merit and to encourage all persons to seek employment with the Company, and to strive for advancement on this basis.

This company agrees to submit to the State Highway and Transportation Commission, all forms and information requested which apply to the EEO program in order to become prequalified and remain qualified to bid on contracts expected to be in the amount of $100,000.00 or more.

This company agrees to keep such records are necessary to determine compliance with and progress under, the company's Equal Employment Opportunity Program. The records kept by the company will be designed to indicate (1) the number of minority group members employed in each work classification during every period of contract performance, (2) to the extent permissible under State law, the name and address of each minority group applicant for employment was not hired and the reason therefore, (3) the progress being made in cooperation with the Unions to increase minority group employment opportunities, (4) the progress being made in locating, hiring, training, qualifying, and upgrading minority group employees, (5) the progress being made in securing the services of minority group Subcontractors, and (6) the general progress being made as established by inspection, review, reports, and surveys, by each Subcontractor used by the company, under such Subcontractor's Equal Employment Opportunity Program. All such records will be retained for a period of three years following completion of the contract work and will available at reasonable times and places for inspection of authorized representatives of the State Highway and Transportation Commission and the Federal Highway Administration.

This company agrees to submit , upon request, a breakdown of its current work force (and two-week continuous period during the sixty (60) day period preceding the filing of a Prequalification Statement) which shows all classifications of employees on the Contractor's work force, the total number of employees in each classification, and the number of minority group members currently employed in each

5. The company will seek by letter or personal contact quotations from minority group subcontractors and subcontractors with minority group representation among their employees.

IV. PLACEMENT AND PROMOTION

The company will review job categories where few minority persons are presently employed, and seek to determine the cause for such situations. Remedial efforts may include such actions as the following:

1. More vigorous recruitment of qualified minority group candidates, especially from minority group organizations.
2. Special discussions with appropriate management, supervisory, or other personnel, regarding the company's policy, and its desire to insure the utilization of qualified minority group personnel at all job levels.
3. Re-evaluate qualifications with the lower echelon of minority group employees to determine whether their skills and capabilities may be more fully utilized at higher job levels or would warrant their transfer to other types of jobs more readily leading to advancement.

Placement, upgrading, promotion, and transfer activities at all levels will be monitored by the company's EEO officer, to insure that full consideration as required by the company policy has been given to qualified minority group employees.

V. TRAINING

On the job training programs, as well as other training and educational programs, which the company provides, supports, or sponsors, will be regularly reviewed to insure that minority group candidates, as well as all other employees, are given Equal Opportunity to participate.

Appropriate steps such as interviews of employees and/or periodic review of employee personnel files will be conducted to give active encouragement to minority group employees to increase their skills and job potential through participation in available training and education programs.

The company will insure that qualified minority group employees are included in supervisory training classes.

The company will seek the inclusion of qualified minority group members in any pre-apprenticeship, apprenticeship, or other type training program in which the company participates.

VI. LAYOFFS, TERMINATION, AND DOWNGRADING

The company, through the company's EEO officer, will insure that layoffs, terminations, downgrading, and recalls from layoffs are made without regard to race, creed, color, religion, sex, or national origin.

VII. UNION SUPPORT

In carrying out its affirmative action policy of providing Equal Employment Opportunity, the company, if it relies in whole or in part upon unions as a source of its work force, will actively seek by letter and personal contact the support of all unions representing its employees and will regularly, by letter and personal contact, urge unions to accept minority group applicants for referral and to refer greater numbers of minority group employees.

VIII. EMPLOYEE BENEFITS AND STATUS

The company will insure that there is no disparity in the compensation received by minority group employees and other employees for performing equivalent duties and that opportunities for performing overtime work or otherwise earning increased compensation are afforded without discrimination to all employees.

The company will insure that working conditions and employee benefits will be determined and administered on a nondiscriminatory basis.

None of the company's facilities will be segregated and the same policy will be observed with respect to any employee programs or activities which are sponsored or supported by the company.

The above matters will be monitored and periodically reviewed by the company's EEO officer.

IX. SUBCONTRACTORS

The company agrees to solicit, by letter or personal contact the employment of minority group subcontractors and subcontractors with minority group representation among their employees. Information as to such sources will be obtained from Minority Group Organizations, Contractor Organizations, the Small Business Administration, and other Federal or State Agencies.

The company agrees not to award any subcontractor equal to or in excess of $10,000.00, until (1) the Subcontractor has submitted a prequalification statement that conforms with the guidelines set forth in Volume 6, Chapter 4, Section 1, Subsection 1 of the Federal Aid Highway Program Manual, Executive Order 11246, (2) the statement has been approved by the State Highway & Transportation Commission and concurred in by the FHWA, (3) the subcontractor has a contractual obligation of the subcontractor.

The company, through the company's EEO officer, will assure and monitor the subcontractor's compliance with the EEO provisions of the contract including the subcontractor's prequalification statement by means of inspections and reviews or by compliance reports submitted to the contractor by the subcontractor.

AFFIRMATIVE ACTION PROGRAM INSTRUCTIONS

A. **Policy:** It is the policy of the City to ensure that a good faith effort will be made by any person or entity entering into a contract with the City, to employ applicants and to treat employees equally without regard to their race, color, creed or religion, national origin, sex, disability or age.

B. **Compliance:** In order to comply with the Affirmative Action Program requirements, Bidder/Proposer should attach one of the following to its bid/proposal:

- Proposed Affirmative Action Program
- Certificate of Compliance issued by CREO KC
- Certificate of Compliance issued by another Governmental Agency
- Exemption letter issued by CREO KC because the business employs less than fifty employees

C. **Questions:** If you have any questions regarding the Affirmative Action requirements, please contact Ian Redhead, Acting as Aviation Department DBE Program Manager at (816) 243-3180.

INSTRUCTIONS FOR FEDERALLY ASSISTED CONSTRUCTION PROJECTS

DISADVANTAGED BUSINESS ENTERPRISE REQUIREMENTS

I. City's DBE Program.

A. The City has adopted a Disadvantaged Business Enterprise ("DBE") Program as mandated by Code of Federal Regulations, 49 CFR Part 26 to implement the City's policy of supporting the fullest possible participation in City contracts and change orders of firms owned and controlled by minorities and women. Each federally assisted construction project may have a DBE goal for participation. A DBE goal is a numerical objective set for the contract that may be awarded pursuant to these bid specifications. The goal is stated as a percentage of contract dollars. For example, if a DBE goal for a contract is 10% and a Bidder submits a bid of $100,000, the goal for DBE participation would equal $10,000. The specific DBE goal on this project is set forth elsewhere in the bid specifications.

B. These DBE Forms & Instructions are part of the BIDDING DOCUMENTS and CONTRACT DOCUMENTS as defined in the General Conditions. By submitting a Bid, the Bidder agrees, as a material term of the contract, to carry out the City's DBE Program by making good faith efforts to include certified DBEs in the project work to the extent of the goal listed for the project and to the fullest extent consistent with submitting the lowest and best bid to the City. Bidder agrees that the Code of Federal Regulation, 49 CFR Part 26, is incorporated into this document and agrees to follow the regulations.

Although it is **not** a requirement that a Bidder in fact meet or exceed the DBE goal to receive approval, a Bidder is required to objectively demonstrate that good faith efforts have been made to meet the DBE goal.

C. The following CREO KC Forms are to be used for DBE submittals:

1. Construction Contractor Utilization Plan/Request for Waiver (CREO KC Form 8)
2. Letter of Intent to Subcontract
3. Timetable for DBE Utilization (CREO KC Form 10).
4. Request for Modification or Substitution (CREO KC Form 11).
5. Contractor Affidavit for Final Payment
6. Subcontractor Affidavit for Final Payment
7. **MCI Bidder's List Statistics from the Prime Contractor and all Subcontractors solicited for the project. (Form MCI Bidder's List Statistics)**

Warning: The City only gives DBE credit for a bidder's use of certified DBEs. A certified DBE firm is a firm that has been **certified** by an approved Unified Certification Program (UCP) as a DBE firm. A DBE firm must be certified **before** bid submission. Before a Bidder submits a bid, Bidder should secure a copy of the DBEs' certificate or consult the state DOT directory to make sure any firm proposed for use for DBE participation has DBE certification. Contact the Aviation Department DBE Manager and consult this Directory to make sure any firm proposed for use for DBE participation has certification.

II. Required Bid Submittal Documents at Time of Bid Opening.

A. Bidder must submit the following with its Bid:

1. **Contractor Utilization Plan/Request for Waiver (CREO KC Form 8):** This form states a Bidder's plan to use specific certified DBEs in the performance of the contract and includes the following:

a. The work to be performed by each DBE and the amounts each is to be paid for the work; and

b. The name, address, and employer identification number or social security number of each DBE that will perform the work; and

c. A Request for Waiver in the event Bidder has not met or exceeded the DBE goal for this contract, but believes that it has made good faith efforts to meet or exceed the goal and desires a waiver of the goal.

d. **Verification letters to and from** each DBE agreeing to execute a formal agreement for the work and indicating the price agreed upon for the work.

e. **Timetable for DBE Utilization (CREO KC Form 10*)*:** The time frames when the DBE's work is scheduled to begin and end.

2. **MCI Bidder's List Statistics from the Prime Contractor and all Subcontractors solicited for the project (Form MCI Bidder's List Statistics).** This form must be submitted at the time of Bid from the Prime Contractor and each of its Subcontractors solicited for the project.

Warning: By submitting its bid, Bidder is agreeing to the following: (1) Bidder has made by bid opening a good faith effort to meet the DBE goal established for the project; and (2) Bidder will submit documentation of its good faith efforts to meet the DBE goal when requested by the City. Failure to meet these requirements in good faith will result in Bidder forfeiting its bid bond.

Warning: Bidders must attempt to meet the DBE goal and request a waiver of the goal if the goal has not been met.

III. Documents Submitted when Requested by the City.

A. A Bidder's documentation of good faith efforts must be submitted when requested by the City.

IV. Methods for Securing Participation of DBEs.

A. **Negotiated Subcontract:** A negotiated subcontract is a contract between the Bidder and a DBE subcontractor or between a subcontractor and a lower-tier DBE subcontractor. Credit towards the Goal is calculated at the full value of the contract or subcontract.

B. **Supply Contracts:** Contracts may be entered into with DBEs to supply any class of materials under the Contract. If the DBE is the manufacturer of part or all of the materials, up to 100% of the cost may be credited towards meeting the Goal, to be determined on a case-by-case basis.

Warning: If the DBE supplier is not a manufacturer, only sixty (60%) of the total payment to a DBE supplier may be credited towards the Goal.

C. **Mentor/Protégé:** A Bidder who has developed a Mentor/Protégé plan may use the Protégé to meet all or part of the applicable DBE goal. Please contact the Aviation Department DBE Manager for details on the Mentor/Protégé program at 243-3108.

If a Bidder is a certified DBE, the bidder is still responsible for meeting the DBE goal, absent the bidder's participation.

Warning 2: A certified DBE must serve a commercially useful function in the contract and exercise actual independent day-to-day management of the work it performs**.** A "commercially useful function" is the performance of real and actual services that are a distinct and verifiable element of the contracted work based upon private sector trade or industry standards, as determined by the City. No credit toward achieving the goal will be allowed for a certified DBE who does not serve a commercially useful function.

The following factors are examined in determining whether a certified DBE is performing a commercially useful function: (1) Whether the DBE has the skill and expertise to perform the work for which it is being utilized; (2) Whether the cost of materials is an ordinary and necessary part of the subcontractor's responsibility; (3) Whether the DBE is in the business of performing, managing or supervising the work in which it has been certified and is so being utilized on the Contract; (4) Whether the DBE is participating in the contract as a middle person or broker in the normal course of that business or trade by purchasing the goods and/or services from another business, thereby qualifying expenditures for such goods and/or services to be counted toward the DBE participation goal for the Contract; (5) Whether the DBE is responsible for the purchase and quality of, and payment for, materials used to perform its work under the Contract; and (6) other relevant factors. There is a rebuttable presumption that, when the DBE subcontracts a greater portion of the contract work than normal industry practice, the DBE is not performing a commercially useful function.

Warning 3: No credit toward the goal for DBE participation will be given for the value of any subcontract awarded to a certified DBE to the extent it is subcontracted back to either the Contractor or another subcontractor who is not a certified DBE.

V. Required Documentation when Bidder Fails to Achieve the DBE Goal.

If a Bidder does not have enough DBE participation to meet or exceed the DBE goal for the contract, **a Bidder must request a waiver at the time of bid opening on the Contractor Utilization Plan/Request for Waiver form (CREO KC Form 8)**. The Aviation Department DBE Manager will examine the Bidder's request for waiver and the Bidder's documentation of good faith efforts and make a recommendation to grant or deny the waiver. The Aviation Department DBE Manager will recommend a waiver be granted only if the Bidder has made good faith efforts to obtain DBE participation in the contract.

VI. Good faith Efforts.

A. A bidder is required to make good faith efforts to achieve the DBE goal. Good faith efforts are efforts that, given all relevant circumstances, a Bidder **actively and aggressively** seeking to meet the goal can reasonably be expected to make. Good faith efforts must be made **before** the Bidder submits a **Contractor Utilization Plan/Request for Waiver (CREO KC Form 8)**.

Warning: Efforts to obtain DBE participation made after a **Contractor Utilization Plan** is submitted cannot be used to show the Bidder made good faith efforts.

B. In evaluating good faith efforts, the Aviation Department DBE Manager will consider whether the Bidder has performed the following, along with any other relevant factors:

1. Advertised opportunities to participate in the contract in general circulation media, trade and professional association publications, small and minority business media, and publications of minority and women's business organizations in sufficient time to allow DBE firms to participate effectively.

2. Provided notice to a reasonable number of minority and women's business organizations of specific opportunities to participate in the contract in sufficient time to allow DBE firms to participate effectively.

3. Sent written notices, by certified mail or facsimile, to qualified, certified DBEs soliciting their participation in the contract in sufficient time to allow them to participate effectively.

4. Attempted to identify portions of the work for qualified, certified DBE participation in order to increase the likelihood of meeting the goal, including breaking down contracts into economically feasible units. A Bidder should send letters by certified mail, e-mail or facsimile to those DBE contractors identified by D/M/WBE directories listed in those categories which are in those subcontractors' scope of work. The portion of work for which a bid from a DBE is being solicited shall be as specific as possible. Letters which are general are not acceptable.

5. Requested assistance in achieving the goal from the Aviation Department DBE Manager and acted on the Manager's recommendations.

6. Conferred with qualified, certified DBEs and explained the scope and requirements of the work for which their bids or proposals were solicited.

7. Attempted to negotiate in good faith with qualified, certified DBEs to perform specific subcontracts; not rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities. Documentation of good faith negotiations with DBEs from whom bids/proposals were received in an effort to reach a mutually acceptable price should include:

a. Names, addresses and telephone numbers of DBEs that were contacted and date of contact;

b. The information provided to DBEs regarding the plans and specifications for portions of the work to be performed by them;

c. The reasons no agreement was reached with any DBE, including the basis for any Bid rejection (i.e., availability, price, qualifications or other);

d. Descriptions of attempts to provide technical assistance to DBEs to obtain necessary insurance and/or to obtain necessary supplies at the best prices available.

8. Within five (5) working days after obtaining the bid specifications, Bidder sent certified letters or facsimiles to qualified, certified DBEs listed in the D/M/WBE Directories.

C. A Bidder will be required to give the City documentation to prove that it made good faith efforts. The Bidder will be contacted by the City with further instructions about when this documentation must be submitted.

VII. Modification of the Contractor Utilization Plan or Substitution of a DBE.

A. After bid opening, a Bidder or Contractor may need to substitute a DBE or request that the amount of DBE participation listed in its Contractor Utilization Plan be modified. To obtain modifications or substitutions, Bidders/Contractors must file a **Request for Modification or Substitution (CREO KC Form 11)** within a reasonable time after learning that a modification or substitution is necessary. The Aviation Department DBE Manager may approve these substitutions or modifications and upon approval, the modifications and substitutions will become an amendment to the **Contractor Utilization Plan**. Modifications or substitutions may be approved when:

1. The Aviation Department DBE Manager finds that the Bidder or Contractor made and provided evidence of good faith efforts to substitute the DBE listed on the **Contractor Utilization Plan** with other certified DBEs for the scope of work or any other scope of work in the project; **AND**

2. The Aviation Department DBE Manager also finds one of the following:

a. The listed qualified, certified DBE is non-responsive or cannot perform; or

b. The listed qualified, certified DBE has increased its previously quoted price to the bidder, proposer or contractor without a corresponding change in the scope of the work; or

c. The listed qualified, certified DBE has committed a material default or breach of its contract with the contractor; or

d. Requirements of the scope of work of the contract have changed and render subcontracting not feasible or not feasible at the levels required by the goal established for the contract; or

e. The listed DBE is unacceptable to the contracting department; or

f. The listed qualified, certified DBE thereafter had its certification revoked; or

g. The Bidder or Contractor has not attempted intentionally to evade the requirements of the Code of Federal Regulations, 49 CFR Part 26 and it is in the best interests of the City to allow a modification or substitution.

VIII. Submittals Required if Listed DBE Fails to Participate in Contract.

If an DBE listed on a **Contractor Utilization Plan** will not be participating in the project, the

Bidder or Contractor must notify the Aviation Department DBE Manager by filing a **Request for Modification or Substitution (CREO KC Form 11)** of its **Contractor Utilization Plan** within a reasonable time after it becomes apparent to the Bidder or Contractor that modification or substitution is necessary to meet its **Contractor Utilization Plan (CREO KC Form 8)**. (See Paragraph IX for discussion of modifications and substitutions).

IX. Submittals Required for Final Contract Payment.

The Contractor must submit the **Contractor Affidavit for Final Payment** and **Subcontractor Affidavit for Final Payment** with its request for final payment under the Contract. This document must be submitted before final payment will be made and satisfies the requirements formerly contained in the **Contractor Utilization Plan/Request for Waiver (CREO KC Form 8).**

The last DBE Utilization Monthly Report, Project Workforce Monthly Report(s) and Company-Wide Workforce Monthly Report(s) shall serve as the final reports and must be submitted before final payment will be made and/or retainage released. Contractor shall note the submittal of the final reports by notation in the box entitled “Final Cumulative Report”.

X. Appeals.

A. In conformance with the Code of Federal Regulations, 49 CFR Part 26, appeals may be made to the Aviation Department DBE Manager on the following:

1. Waiver of bid informality with respect to the Act;

2. The grant or denial of a **Request for Waiver***;*

3. Substitution for a DBE listed on a **Contractor Utilization Plan**;

4. Modification of the percentage of DBE participation on a **Contractor Utilization Plan**;

5. Award of a contract to or continued performance by a person who has violated the Code of Federal Regulations, 49 CFR Part 26

6. The amount of DBE credit the Contractor may receive for DBE participation in the contract.

B. Any appeal must be filed in writing with the Aviation Department DBE Manager within ten (10) working days of notice of the recommendation or determination. Mailing, faxing, personal delivery or posting of determinations or recommendations shall constitute notice. The appeal shall state with specificity why the Bidder or Contractor believes the recommendation or determination is incorrect

C. Failure to file a timely appeal shall constitute a waiver of a Bidder’s or Contractor’s right to appeal such determination or recommendation and such person shall be estopped to deny the validity of any order, determination, recommendation or action of the Aviation Department DBE Manager which could have been timely appealed.

XI. Access to Documents and Records.

A. By submitting a Bid, each Bidder agrees to permit the City, its duly authorized agents or employees, access at all reasonable times to all books and business records of Bidder as may be necessary to ascertain compliance with the requirements of this Document and the Code of Federal Regulations, 49 CFR Part 26, within ten (10) days of the date of the written request.

B. All Bidders agree to cooperate with the contracting department in studies and surveys regarding the DBE program.

XII. Miscellaneous.

A. A Bidder or Contractor shall bear the burden of proof with regard to all issues on appeal.

B. In the event of any conflict between this Document and the Code of Federal Regulations, 49 CFR Part 26, the provisions of the Code of Federal Regulations shall control. The terms used in this document are defined in the Code of Federal Regulations, 49 CFR Part 26.

C. Oral representations are not binding on the City.

LETTER OF INTENT TO SUBCONTRACT

Project Number: 62230566

Project Title: Taxiway E and Taxiway J Rehabilitation

Ideker, Inc. ("Prime Contractor") agrees to enter into a contractual agreement with Realm Construction Inc. ("DBE Subcontractor"), who will provide the following goods/services in connection with the above-referenced contract:

(Insert a brief narrative describing the goods/services to be provided. Broad categorizations (e.g., "electrical," "plumbing," etc.) or the listing of the NAICS Codes in which DBE Subcontractor is certified are insufficient and may result in this Letter of Intent to Subcontract not being accepted.)

Realm Construction will install 15" Concrete Pavement and 15" Reinforced Concrete Pavement.

for an estimated amount of $ 376,888.00 or 2.52 % of the total estimated contract value.

DBE Subcontractor is, to the best of Prime Contractor's knowledge, currently certified with CREO KC to perform in the capacities indicated herein. Prime

Contractor agrees to utilize DBE Subcontractor in the capacities indicated herein, and DBE

Subcontractor agrees to work on the above-referenced contract in the capacities indicated herein,

contingent upon award of the contract to Prime Contractor.

Signature: Prime Contractor	Signature: DBE Subcontractor
Cody Phillips	Cathy Phillips
Print Name	Print Name
Vice President	President
Title	Title
03-20-2023	3-20-2023
Date	Date

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

LETTER OF INTENT TO SUBCONTRACT

Project Number: 62230566

Project Title: Taxiway E and Taxiway J Rehabilitation

Ideker, Inc. ("Prime Contractor") agrees to enter into a contractual agreement with RL Hannah & Sons Trucking ("DBE Subcontractor"), who will provide the following goods/services in connection with the above-referenced contract:

(Insert a brief narrative describing the goods/services to be provided. Broad categorizations (e.g., "electrical," "plumbing," etc.) or the listing of the NAICS Codes in which DBE Subcontractor is certified are insufficient and may result in this Letter of Intent to Subcontract not being accepted.)

RL Hannah and Sons Trucking will haul raw materials from their origin to the designated to the project.

for an estimated amount of $ 423,360.00 or 2.83 % of the total estimated contract value.

DBE Subcontractor is, to the best of Prime Contractor's knowledge, currently certified with CREO KC to perform in the capacities indicated herein. Prime

Contractor agrees to utilize DBE Subcontractor in the capacities indicated herein, and DBE

Subcontractor agrees to work on the above-referenced contract in the capacities indicated herein,

contingent upon award of the contract to Prime Contractor.

Signature: Prime Contractor	Signature: DBE Subcontractor
Cody Phillips	
Print Name	Print Name
Vice President 3-20-2023	VP 3.20.2023
Title Date	Title Date

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

LETTER OF INTENT TO SUBCONTRACT

Project Number: 62230566

Project Title: Taxiway E and Taxiway J Rehabilitation

Ideker, Inc. ("Prime Contractor") agrees to enter into a contractual agreement with RL. Hannah & Sons Trucking ("DBE Subcontractor"), who will provide the following goods/services in connection with the above-referenced contract:

(Insert a brief narrative describing the goods/services to be provided. Broad categorizations (e.g., "electrical," "plumbing," etc.) or the listing of the NAICS Codes in which DBE Subcontractor is certified are insufficient and may result in this Letter of Intent to Subcontract not being accepted.)

RL. Hannah will supply all the aggregates for the concrete paving on this project. This will include coarse and fine aggregates.

for an estimated amount of $ 1,190,922.00 or 7.95 % of the total estimated contract value.

DBE Subcontractor is, to the best of Prime Contractor's knowledge, currently certified with CREO KC to perform in the capacities indicated herein. Prime

Contractor agrees to utilize DBE Subcontractor in the capacities indicated herein, and DBE

Subcontractor agrees to work on the above-referenced contract in the capacities indicated herein,

contingent upon award of the contract to Prime Contractor.

Signature: Prime Contractor	Signature: DBE Subcontractor
Cody Phillips	Shaw Green
Print Name	Print Name
Vice President 3-20-2023	VP 3.20.2023
Title Date	Title Date

LETTER OF INTENT TO SUBCONTRACT

Project Number: 62230566

Project Title: Taxiway E and Taxiway J Rehabilitation

Ideker, Inc. ("Prime Contractor") agrees to enter into a contractual agreement with Clymore Trucking Co. ("DBE Subcontractor"), who will provide the following goods/services in connection with the above-referenced contract:

(Insert a brief narrative describing the goods/services to be provided. Broad categorizations (e.g., "electrical," "plumbing," etc.) or the listing of the NAICS Codes in which DBE Subcontractor is certified are insufficient and may result in this Letter of Intent to Subcontract not being accepted.)

Clymore Trucking Co. will haul all broken concrete from the jobsite to a designated dump site.

for an estimated amount of $ 400,000.00 or 2.67 % of the total estimated contract value.

DBE Subcontractor is, to the best of Prime Contractor's knowledge, currently certified with CREO KC to perform in the capacities indicated herein. Prime

Contractor agrees to utilize DBE Subcontractor in the capacities indicated herein, and DBE

Subcontractor agrees to work on the above-referenced contract in the capacities indicated herein,

contingent upon award of the contract to Prime Contractor.

Signature: Prime Contractor	Signature: DBE Subcontractor
Cody Phillips	DANIEL CLYMORE
Print Name	Print Name
Vice President 3-20-2023	OPERATIONS MANAGER 03.20.23
Title Date	Title Date

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

LETTER OF INTENT TO SUBCONTRACT

Project Number: 62230566

Project Title: Taxiway E and Taxiway J Rehabilitation

Ideker, Inc. ("Prime Contractor") agrees to enter into a contractual agreement with PH Trucking ("DBE Subcontractor"), who will provide the following goods/services in connection with the above-referenced contract:

(Insert a brief narrative describing the goods/services to be provided. Broad categorizations (e.g., "electrical," "plumbing," etc.) or the listing of the NAICS Codes in which DBE Subcontractor is certified are insufficient and may result in this Letter of Intent to Subcontract not being accepted.)

PH Trucking will haul all of the wet batch concrete on this project from the designated batch plant site to the jobsite.

for an estimated amount of ~~$ 295,000.00~~ $457,000 or ~~1.97~~ 3.08 % of the total estimated contract value.

DBE Subcontractor is, to the best of Prime Contractor's knowledge, currently certified with CREO KC to perform in the capacities indicated herein. Prime Contractor agrees to utilize DBE Subcontractor in the capacities indicated herein, and DBE Subcontractor agrees to work on the above-referenced contract in the capacities indicated herein, **contingent upon award of the contract to Prime Contractor.**

C Phillips	Patty Hill
Signature: Prime Contractor	Signature: DBE Subcontractor
Cody Phillips	Patty Hill
Print Name	Print Name
Vice President	Owner
Title	Title
3-20-2023	3-20-23
Date	Date

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

LETTER OF INTENT TO SUBCONTRACT

Project Number: 62230566

Project Title: Taxiway E and Taxiway J Rehabilitation

Ideker Construction Co. Inc. ("Prime Contractor") agrees to enter into a contractual agreement with Dye Electric ("DBE Subcontractor"), who will provide the following goods/services in connection with the above-referenced contract:

(Insert a brief narrative describing the goods/services to be provided. Broad categorizations (e.g., "electrical," "plumbing," etc.) or the listing of the NAICS Codes in which DBE Subcontractor is certified are insufficient and may result in this Letter of Intent to Subcontract not being accepted.)

Airfield Electrical Installation

for an estimated amount of $139,800.00 or 0.93 % of the total estimated contract value.

DBE Subcontractor is, to the best of Prime Contractor's knowledge, currently certified with CREO KC to perform in the capacities indicated herein. Prime

Contractor agrees to utilize DBE Subcontractor in the capacities indicated herein, and DBE

Subcontractor agrees to work on the above-referenced contract in the capacities indicated herein,

contingent upon award of the contract to Prime Contractor.

Signature: Prime Contractor	Signature: DBE Subcontractor
Cody Phillips	Brandon Dye
Print Name	Print Name
Vice President 3/21/23	Owner 3/30/2023
Title Date	Title Date

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

LETTER OF INTENT TO SUBCONTRACT

Project Number: 62230566

Project Title: Taxiway E and Taxiway J Rehabilitation

Ideker Construction Co. Inc. ("Prime Contractor") agrees to enter into a contractual agreement with Dayspring Electric, Inc. ("DBE Subcontractor"), who will provide the following goods/services in connection with the above-referenced contract:

(Insert a brief narrative describing the goods/services to be provided. Broad categorizations (e.g., "electrical," "plumbing," etc.) or the listing of the NAICS Codes in which DBE Subcontractor is certified are insufficient and may result in this Letter of Intent to Subcontract not being accepted.)

Airfield Electrical Installation

for an estimated amount of $ 86,200.00 or 0.58 % of the total estimated contract value.

DBE Subcontractor is, to the best of Prime Contractor's knowledge, currently certified with CREO KC to perform in the capacities indicated herein. Prime

Contractor agrees to utilize DBE Subcontractor in the capacities indicated herein, and DBE

Subcontractor agrees to work on the above-referenced contract in the capacities indicated herein,

contingent upon award of the contract to Prime Contractor.

Signature: Prime Contractor	Signature: DBE Subcontractor
Cody Phillips	Sandy Scubelek
Print Name	Print Name
Vice President 3/21/23	Owner 3/20/2023
Title Date	Title Date

CITY OF FOUNTAINS
HEART OF THE NATION
KANSAS CITY
MISSOURI

LETTER OF INTENT TO SUBCONTRACT

Project Number: 62230566

Project Title: Taxiway E and Taxiway J Rehabilitation

IDEKER INC. ("Prime Contractor") agrees to enter into a contractual agreement with CONSTRUCTION ANCHORS INC. ("DBE Subcontractor"), who will provide the following goods/services in connection with the above-referenced contract:

(Insert a brief narrative describing the goods/services to be provided. Broad categorizations (e.g., "electrical," "plumbing," etc.) or the listing of the NAICS Codes in which DBE Subcontractor is certified are insufficient and may result in this Letter of Intent to Subcontract not being accepted.)

Material Supplier - Concrete Paving accessories

for an estimated amount of $ 273,873.00 or 1.83 % of the total estimated contract value.

DBE Subcontractor is, to the best of Prime Contractor's knowledge, currently certified with CREO KC to perform in the capacities indicated herein. Prime

Contractor agrees to utilize DBE Subcontractor in the capacities indicated herein, and DBE

Subcontractor agrees to work on the above-referenced contract in the capacities indicated herein,

contingent upon award of the contract to Prime Contractor.

Signature: Prime Contractor	Signature: DBE Subcontractor
Cody Phillips	LAURA King
Print Name	Print Name
Vice President	President
Title	Title
03-21-2023	3.21.2023
Date	Date

DocuSign Envelope ID: BA7B6F7E-7F53-43C2-92C1-7A0C83A86AC4

Civil Rights & Equal Opportunity Department
Economic Equity & Inclusion
Contractor Utilization Plan Approval Form

Date: 4-3-23
Form Prepared By: Sara Hurst

Contract/Project Number: 62230566	Developer/Prime: Ideker, Inc
Project Name: Taxiway E and Taxiway J Rehab	Contact Information: Cody Phillips 816-364-3970
Final Contract Value: $14,979,967.10	Address: 4614 South 40th St. St. Joseph, MO 64503

Funding:	☐ City	☐ State	☑ Federal	☐ CO-OP	☐ Grant:	☐ Other:
Project Requirements:	☐ M/WBE	☑ DBE	☐ Section 3	☐ N/A		
Tax Incentive:	☐ LCRA	☐ TIF	☐ PIEA	☑ N/A	☐ Other:	
Prevailing Wage:	☑ Yes	☐ No				
Davis-Bacon:	☑ Yes	☐ No				

Construction Employment Program:
☑ Yes: Workforce goals are 10% Minority & 2% Women. There are over 800 Workforce hours and project cost is $300,000 or more.
☐ No: Workforce hours are less than 800 and project cost is less than $300,000.

Contract Goals: 22.35% DBE	Contractor Utilization Plan Achievement: 22.35% DBE
Self-Perform: 0 %	Self-Perform: 0 %
MBE: ____%	MBE: ____%
WBE: ____%	WBE: ____%
Non-certified firms: ____%	Non-certified firms: ____%

Contract Type:

☑ Construction	☐ Design-Build	☐ Design Professional	☐ Professional Services
☐ General Service	☐ Concession	☐ Other Goods & Services	☐ Non-Municipal Agency
☐ Co-Operative	☐ Revenue Sharing	☐ Facilities Maintenance/Repair/Renovation	
☐ Other:			

Additional Information:

This document is submitted with all available facts. Intentionally falsifying this document or omitting pertinent facts is grounds for disciplinary action pursuant to KCMO Human Resources Rules & Policy Manual (eff. August 4, 2014).

FOR CIVIL RIGHTS & EQUAL OPPORTUNITY DEPARTMENT (CREO) USE ONLY:

The Contractor Utilization Plan is:

☒ Approved	☐ Disapproved	
_____% MBE	_____% WBE	22.35 % DBE

The Request for Good Faith Efforts Waiver is:

☐ Approved	☐ Disapproved	☐ Not Applicable

Appeal Sent to FICB or Incentive Agency? ☐ Yes _____ FICB _____ Incentive Agency ☐ No

CREO Signature: DocuSigned by: Andy Adkins 41C8DF5657F8434... Date: 5/8/2023

Comments:

Contractor Utilization Plan (CUP) MUST be submitted to CREO prior to being posted on docket for review & approval from Council.

DocuSign Envelope ID: BA7B6F7E-7F53-43C2-92C1-7A0C83A86AC4

Civil Rights & Equal Opportunity Department
Economic Equity & Inclusion
Nondiscrimination & Equal Opportunity Review Form

Date: 4-3-23
Form Prepared By: Sara Hurst

Contract/Project Number: 62230566	Project Name: Taxiway E and Taxiway J Rehab
Developer/Prime: Ideker, Inc	Contact Information: Cody Phillips 816-364-3970
Final Contract Value: $14,979,967.10	Project Manager: Mike Waller

Funding:	☐ City	☐ State	☑ Federal	☐ CO-OP	☐ Grant:	☐ Other:
Project Requirements:	☐ M/WBE	☑ DBE	☐ Section 3	☐ N/A		
Tax Incentive:	☐ LCRA	☐ TIF	☐ PIEA	☐ Ch. 100	☐ Other:	☑ N/A
Prevailing Wage:	☑ Yes	☐ No				
Davis-Bacon:	☑ Yes	☐ No				

Construction Employment Program:
☑ Yes: Workforce goals are 10% Minority & 2% Women. There are over 800 Workforce hours and project cost is $300,000 or more.
☐ No: Workforce hours are less than 800 and project cost is less than $300,000.

Contracts & Leases	Nondiscrimination
Ch. 3 Article IV: x	Ch. 38: x
RSMo 213: x	Title VI: x
MWDBE: x	Prevailing Wage and Labor Standards: x
SLBE: x	RSMo 34 Anti-Discrimination Against Israel: x

Contract Type:
☑ Construction ☐ Design-Build ☐ Design Professional ☐ Professional Services
☐ General Service ☐ Concession ☐ Other Goods & Services ☐ Non-Municipal Agency
☐ Co-Operative ☐ Revenue Sharing ☐ Facilities Maintenance/Repair/Renovation
☐ Other:

Additional Information:

We are in the stages of forming a construction contract with Ideker. They have already signed the bid form contract. We just need for the Non-Discrimination form to be looked at and signed. At the time the project was advertised and the bid form was signed by Ideker, we had all the updated forms in the unsigned contract paperwork for that point in time.

This document is submitted with all available facts. Intentionally falsifying this document or omitting pertinent facts is grounds for disciplinary action pursuant to KCMO Human Resources Rules & Policy Manual (eff. August 4, 2014).

FOR CIVIL RIGHTS & EQUAL OPPORTUNITY DEPARTMENT (CREO) USE ONLY:

The Document is:

☒ Approved	☐ Disapproved

Changes Needed:

Federal Provisions Included:

☐ Approved	☐ Disapproved	☐ Not Applicable

CREO Signature: DocuSigned by: Andy Adkins 41C8DF5657F8434... Date: 5/8/2023

Comments:

CONTRACTOR UTILIZATION PLAN/REQUEST FOR WAIVER

Project Number: 62230566

Project Title: Taxiway E and Taxiway J Rehabilitation

Department: Aviation

Ideker, Inc.

(Bidder/Proposer)

STATE OF Missouri)
) ss
COUNTY OF Buchanan)

I, Cody Phillips, of lawful age and upon my oath state as follows:

1. This Affidavit is made for the purpose of complying with the provisions of the DBE submittal requirements on the above project and the DBE Program and is given on behalf of the Bidder/Proposer listed below. It sets out the Bidder/Proposer's plan to utilize DBE contractors on the project.

2. The project goals are **22.35% DBE.** Bidder/Proposer assures that it will utilize a minimum of the following percentages of DBE participation in the above project:

   BIDDER/PROPOSER PARTICIPATION: 22.35 **% DBE**

3. The following are the DBE subcontractors whose utilization Bidder/Proposer warrants will meet or exceed the above-listed Bidder/Proposer Participation. Bidder/Proposer warrants that it will utilize the DBE subcontractors to provide the goods/services described in the applicable Letter(s) of Intent to Subcontract, (copies of which shall collectively be deemed incorporated herein). All firms must currently be certified with the Missouri Regional Certification Committee (MRCC) under 49 CFR Part 26. List additional DBEs, if any, on an additional page and attach to this form.

   a. Name of DBE Firm Realm Construction Inc.
   Address 604 SE Industrial Drive Blue Springs, MO 64014
   Telephone No. 816-229-6620
   I.R.S. No. 43-1607381
   Area/Scope of work Concrete Paving

   b. Name of DBE Firm R.L. Hannah & Sons Trucking
   Address 28110 SW outer Road Harrisonville, MO 64701
   Telephone No. 816-380-4510

I.R.S. No. 43-1032004
Area/Scope of work Material Supplier

c. Name of DBE Firm R.L. Hannah & Sons Trucking
Address 28110 SW Outer Road Harrisonville, MO 64701
Telephone No. 816-380-4510
I.R.S. No. 43-1032004
Area/Scope of work Material Trucking

d. Name of DBE Firm Clymore Trucking
Address 530 Route 291 Independence, MO 64056
Telephone No. 816-225-0649
I.R.S. No. 43-1732246
Area/Scope of work Trucking

e. Name of DBE Firm PH Trucking
Address 11512 State HWY U Rogersville, MO 65742
Telephone No. 417-838-9169
I.R.S. No. 45-4702129
Area/Scope of work Trucking

f. Name of DBE Firm ~~Pine Valley Contracting~~
Address ~~13586 Cameron Road Excelsior Springs, MO 64024~~
Telephone No. ~~816-324-3772~~
I.R.S. No. ~~43-1508861~~
Area/Scope of work ~~Erosion Control, Seed, Sod & Mulch~~

(List additional DBEs, if any, on additional page and attach to this form)

4. The following is a breakdown of the percentage of the total contract amount that Bidder/Proposer agrees to pay to each listed DBE:

DBE BREAKDOWN SHEET

$457,000

DBE FIRMS:

Name of DBE Firm	Supplier/Contractor	Subcontract Amount*	Weighted Value**	% of Total Contract
Realm Construction Inc.	Contractor	$376,888	$376,888	2.52
RL Hannah & Sons	Contractor	$423,360	$423,360	2.83
RL Hannah & Sons	Supplier	$1,984,870	$1,190,922	7.95
Clymore Trucking	Contractor	$400,000	$400,000	2.67
PH Trucking	Contractor	~~$295,000~~ $457,000	~~$295,000~~	~~1.97~~ 3.05
~~Pine Valley Contracting~~	~~Contractor~~	~~$162,000~~	~~$162,000~~	~~1.08~~
DYE Electric	Contractor	$139,800	$139,800	0.93
Dayspring Electric	Contractor	$86,200	$86,200	0.58
Construction Anchor	Supplier	$456,422	$273,853	1.83
TOTAL DBE $ / TOTAL DBE %:		$4,324,540		~~22.36~~ % 22.35%

I.R.S. No. _____
Area/Scope of work _____

c. Name of DBE Firm DYE Electric
Address 1601 East 18th Street Suite 204 KCMO 64108
Telephone No. 816-944-1393
I.R.S. No. 45-4470721
Area/Scope of work Airfield Electrical Install

d. Name of DBE Firm Dayspring Electric Inc.
Address 21170 Stayyard Road Tonganoxie KS 66086
Telephone No. 913-391-8691
I.R.S. No. 20-3825175
Area/Scope of work Airfield Electrical Install

e. Name of DBE Firm Construction Anchors Inc.
Address 13900 Blue Parkway Kansas City, MO 64139
Telephone No. 816-525-3640
I.R.S. No. 43-0906693
Area/Scope of work Material Supplier Paving Accessories

f. Name of DBE Firm _____
Address _____
Telephone No. _____
I.R.S. No. _____
Area/Scope of work _____

(List additional DBEs, if any, on additional page and attach to this form)

4. The following is a breakdown of the percentage of the total contract amount that Bidder/Proposer agrees to pay to each listed DBE:

DBE BREAKDOWN SHEET

DBE FIRMS: Totals on previous page

Name of DBE Firm	Supplier/Contractor	Subcontract Amount*	Weighted Value**	% of Total Contract

TOTAL DBE $ / TOTAL DBE %: $_____ _____%

*"Subcontract Amount" refers to the dollar amount that Bidder/Proposer has agreed to pay each DBE subcontractor as of the date of contracting and is indicated here solely for the purpose of calculating the percentage that this sum represents in proportion to the total contract amount. Any contract amendments and/or change orders changing the total contract amount may alter the amount due a DBE under their subcontract for purposes of meeting or exceeding the Bidder/Proposer participation.

**"Weighted Value" means the portion of the subcontract amount that will be credited towards meeting the Bidder/Proposer participation. See CREO KC
Forms and Instructions for allowable credit and special instructions for suppliers.

5. Bidder/Proposer acknowledges that the monetary amount to be paid each listed DBE for their work, and which is approved herein, is an amount corresponding to the percentage of the total contract amount allocable to each listed DBE as calculated in the DBE Breakdown Sheet. Bidder/Proposer further acknowledges that this amount may be higher than the subcontract amount listed therein as change orders and/or amendments changing the total contract amount may correspondingly increase the amount of compensation due a DBE for purposes of meeting or exceeding the Bidder/Proposer participation.

6. Bidder/Proposer acknowledges that it is responsible for considering the effect that any change orders and/or amendments changing the total contract amount may have on its ability to meet or exceed the Bidder/Proposer participation. Bidder/Proposer further acknowledges that it is responsible for submitting a Request for Modification or Substitution if it will be unable to meet or exceed the Bidder/Proposer participation set forth herein.

7. If Bidder/Proposer has not achieved the DBE goal set for this Project, Bidder/Proposer hereby requests a waiver of the DBE goal that Bidder/Proposer has failed to achieve.

8. Bidder/Proposer will present documentation of its good faith efforts, a narrative summary detailing its efforts and the reasons its efforts were unsuccessful when requested by the City.

9. I hereby certify that I am authorized to make this Affidavit on behalf of the Bidder/Proposer named below and who shall abide by the terms set forth herein:

Bidder/Proposer primary contact: Cody Phillips
Address: 4614 South 40th St. St. Joseph, MO 64503
Facsimile number: 816-364-4783
E-mail Address: cody@deker.net

By: C Phil
Title: Vice President
Date: 3-21-2023
(Attach corporate seal if applicable)

Subscribed and sworn to before me this 21 day of March, 2023

My Commission Expires: 03/06/2026 Cijay Smith

Notary Public

CIJAY SMITH
Comm. Exp. 03/06/2026
NOTARY PUBLIC NOTARY SEAL
#22010373
Buchanan County
STATE OF MISSOURI



TIMETABLE FOR DBE UTILIZATION

(This form should be submitted to the City at bid opening.)

I, Cody Phillips (Name), acting in my capacity as Vice President (Position with Firm) of Ideker, Inc (Name of Firm), with the submittal of this Timetable, certify that the following timetable for DBE utilization in the fulfillment of this contract is correct and true to the best of my knowledge.

ALLOTTED TIME FOR THE COMPLETION OF THIS CONTRACT
(Check one only)

15 days	___	75 days	___	135 days	___
30 days	___	90 days	___	150 days	___
45 days	___	105 days	___	165 days	___
60 days	___	120 days	___	180 days	___

Other 155 days (Specify)

Throughout X Beginning 1/3 _____

Middle 1/3 _____ Final 1/3 _____

Beginning 1/3 _____% Middle 1/3 _____% Final 1/3 _____%

PLEASE NOTE: Any changes in this timetable require approval of the Aviation Department in advance of the change.

If you have any questions regarding the completion of this form, please contact the Department of Aviation at (816) 243-3108

C Phillips
(Signature)

Vice President
(Position with Firm)

3/21/2023
(Date)

REQUEST FOR MODIFICATION OR SUBSTITUTION

*(This Form **must** be submitted to CREO KC to request substitutions for a DBE listed in the Contractor Utilization Plan or for modification of the amount of DBE participation listed in the Contractor Utilization Plan. This Form shall be an amendment to the Contractor Utilization Plan.)*

BIDDER/PROPOSER/CONTRACTOR: _____

ADDRESS: _____

PROJECT NUMBER OR TITLE: _____

AMENDMENT/CHANGE ORDER NO: (if applicable) _____

Project Goals:	22.35 % DBE
Contractor Utilization Plan:	_____% DBE

1. I am the duly authorized representative of the above Bidder/Contractor/Proposer and am authorized to request this substitution or modification on behalf of the Bidder/Contractor/Proposer.

2. I hereby request that the Director of CREO KC recommend or approve: (check appropriate space(s))

   a. ____ A substitution of the certified DBE firm _____,
   (Name of new firm)
   to perform _____,
   (Scope of work to be performed by new firm)

   for the DBE firm _____ which is currently
   (Name of old firm)
   listed on the Bidder's/Contractor's/Proposer's Contractor Utilization Plan to perform the

   following scope of work: _____.
   (Scope of work of old firm)

   b. ____A modification of the amount of DBE participation currently listed on the Bidder's/Contractor's/Proposer's Contractor Utilization Plan from

   _____ % DBE *(Fill in % of DBE Participation currently listed on Contractor Utilization Plan)*

   TO

   _____% DBE *(Fill in New % of DBE Participation requested for Contractor Utilization Plan)*

   c. Attach 00460 Letter of Intent to Subcontract letter for each new DBE to be added.

   d. Attach a copy of the most recent 00485.01 DBE Monthly Utilization Report.

3. Bidder/Contractor/Proposer states that a substitution or modification is necessary because: (check applicable reason(s))

___The DBE listed on the Contractor Utilization Plan is non-responsive or cannot perform.

___The DBE listed on the Contractor Utilization Plan has increased its previously quoted price without a corresponding change in the scope of work.

___The DBE listed on the Contractor Utilization Plan has committed a material default or breach of its contract.

___Requirements of the scope of work of the contract have changed and make subcontracting not feasible or not feasible at the levels required by the goals established for the contract.

___The DBE listed on the Contractor Utilization Plan is unacceptable to the City contracting department.

___Bidder/Contractor/Proposer has not attempted intentionally to evade the requirements of the Act and it is in the best interests of the City to allow a modification or substitution.

4. The following is a narrative summary of the Bidder's/Contractor's/Proposer's good faith efforts exhausted in attempts to substitute the DBE firm named above which is currently listed on the Contractor Utilization Plan with other qualified, certified DBE firms for the listed scope of work or any other scope of work in the project:

_____
_____
_____
_____
_____
_____
_____
_____
_____

5. Bidder/Proposer/Contractor will present documentation when requested by the City to evidence its good faith efforts.

Dated: _____ _____
(Bidder/Proposer/Contractor)

By: _____
(Authorized Representative)

(Do Not Write in This Space: DBE Manager Use Only)

_____ Approved _____ Disapproved

_____
CREO DBE Coordinator

CITY OF FOUNTAINS
HEART OF THE NATION
KANSAS CITY
MISSOURI

AFFIDAVIT OF TRAINING PROGRAM

This form must be submitted with 48 hours of Bid Opening

Bidder Ideker, Inc.

Project Number and Title 62230566 – Taxiway E and Taxiway J Rehabilitation

STATE OF MISSOURI)
) ss:
COUNTY OF Buchanan)

After being duly sworn the person whose name and signature appears below hereby states under penalty of perjury that:

1. I am the duly authorized officer of the business indicated above ("Bidder") and I make this affidavit on behalf of Bidder.
2. Bidder certifies that it presently participates in a training program that facilitates entry into the construction industry and which may include an on-the-job or in-house training program, further described as follows:

Ideker, Inc. is a Union Contractor who relies on the Operators Local 101 as well as the Laborers Local 663. Both the Operators and the Laborers Local have apprenticeship Programs. On all contracts, Ideker Inc. requests both apprentices and trainees from the Unions to work on the projects.

(attach additional pages, if necessary)

3. If requested by the City, Bidder agrees to provide City further documentation of, or other information about, this training program within 48 hours of the request.
4. Bidder acknowledges that failure to submit this form to the City within 48 hours of the Bid Opening will automatically render its bid non-responsive.

I am authorized to make this Affidavit on behalf of the Bidder named below as:

Vice President (Title) of Ideker, Inc. (Name of Bidder)

Dated: 03-22-2023 By: CA Pill (Affiant)

Subscribed and sworn to before me this 22 day of March, 2023.

My Commission Expires: 03/06/2026 Cijay Smith Notary Public

CIJAY SMITH
Comm. Exp. 03/06/2026
NOTARY PUBLIC
NOTARY SEAL
#22010373
Buchanan County
STATE OF MISSOURI

City of Kansas City, Missouri
Human Relations Department
Construction Contractor Employee Identification Report

Company Name: Ideker, Inc.
Company Address: 4614 South 40th Street
Company City, State, Zip: St. Joseph, MO 64503

Prime's Name: Ideker, Inc.
KCMO Project Name: Taxiway E and J Rehabilitation
KCMO Project Number: 62230566

Name of Person Completing Report: Cody Phillips
Phone Number: 816-364-3970
Email: cody@ideker.net

Today's Date: 3/22/2023
City Department: Aviation

Instructions:

1) Each applicable Prime Contractors **must complete this form for its company within 48 hours of bid opening**
2) The Human Relations Department strongly recommends usage of the electronic version of this form. This form may be obtained by visiting www.kcmo.gov website. The website is enabled with a "search" function on the Home page in the center titled "What are you looking for?". Type in the "What are you looking for?" field *Contract Central*. Click on the link to Standard City Contract Forms. Scroll down to *Construction Contractor Employee Identification Report* and click the link to open this document. Complete the fields in the Employee section; the *Official Use Only* section will automatically populate. **NOTE: This form can be printed and attached to other required Bid documents.**
3) All subcontractors shall be required to complete this form and submit to the Prime Contractor. For each subcontractor, the Prime must submit this form to City at least at least (10) days prior to the date the subcontractor shall commence work under a city construction contract.
4) Complete this form if you are the Prime contractor on a City construction project estimated over **$300,000 & over 800 man hours.**
5) Complete this form with data from your **current construction workforce** (no office personnel).
6) Prime contractor is responsible to ensure subcontractor completes this form as required in #3 above.

Official Use Only

Females		*KCMO Resident*
African American	0	0
Asian/Pacific Islander American	0	0
Caucasian American	4	0
Hispanic/Latino American	0	0
Native American	0	0
Other	0	0
	4	0

Males		*KCMO Resident*
African American	4	3
Asian/Pacific Islander American	0	0
Caucasian American	32	1
Hispanic/Latino American	6	1
Native American	1	0
Other	0	0
	43	5

Number of KCMO Residents	5
Number of Journeyman	43
Number of Apprentice	4

	Journeyman	*Apprentice*
Foreman/Supervisor	6	--
Asbestos Worker	0	0
Boilermaker	0	0
Bricklayer	0	0
Carpenter	0	0
Cement Mason	2	0
Electrician	0	0
Elevator Constructor	0	0
Glazier	0	0
Iron Worker	0	0
Laborer	7	3
	15	3

	Journeyman	*Apprentice*
Operating Engineer	18	1
Painter	0	0
Pipe Fitter/Plumber	0	0
Plasterer	0	0
Roofer	0	0
Sheet Metal	0	0
Sprinkler Fitter	0	0
Truck Driver	2	0
Welder	0	0
Other	8	--
	28	1

Company Name: Ideker, Inc. KCMO Project Name: Construct Taxiway L KCMO Project Number: 62230568

	Name		Job Title (*use drop down menu*)	Address	City	State	Zip Code	KCMO Resident	Gender	Ethnicity
	Last	First								
1	Aughinbaugh	Adam	Operating_Engineer_(Journeyman)	1325 SW Wamsley Road	Osborn	MO	64474	No	Male	Caucasian_American
2	Barnes	Joel	Operating_Engineer_(Journeyman)	33764 120th Street	Westboro	MO	64498	No	Male	Caucasian_American
3	Bennett	Samuel	Operating_Engineer_(Journeyman)	PO Box 421	Maysville	MO	64469	No	Male	Caucasian_American
4	Brooks	Adam	Other	817 Thomas Road	Pomona	KS	66076	No	Male	Caucasian_American
5	Burks	Kenneth	Operating_Engineer_(Journeyman)	325 Main Street	Amazonia	MO	64421	No	Male	Caucasian_American
6	Coatney	Christina	Laborer_(Journeyman)	324 S Roy Harra Rd	Buckner	MO	64016	No	Female	Caucasian_American
7	Cox	Randall	Laborer_(Journeyman)	15052 County Road 458	Amazonia	MO	64421	No	Male	Caucasian_American
8	Engle	Alan	Truck_Driver_(Journeyman)	10774 SE 226th	Lawson	MO	64062	No	Male	Native_American
9	Escamilla	Gilberto	Cement_Mason_(Journeyman)	719 SE Lake	Topeka	KS	66607	No	Male	Hispanic/Latino_American
10	Etherton	Timothy	Operating_Engineer_(Journeyman)	4253 NE State Route U	Hamilton	MO	64644	No	Male	Caucasian_American
11	Farrier	Douglas	Operating_Engineer_(Journeyman)	7241 Widmer Road	Shawnee	KS	66216	No	Male	Caucasian_American
12	Franklin	Mark	Operating_Engineer_(Apprentice)	12307 Richmond Ave	Grandview	MO	64030	No	Male	African_American
13	Frelo	Michael	Operating_Engineer_(Journeyman)	11317 Cleveland Ave	Kansas City	MO	64137	Yes	Male	African_American
14	Garcia	Juan	Laborer_(Journeyman)	719 SE Lake	Topeka	KS	66607	No	Male	Hispanic/Latino_American
15	Gebbie	Kasey	Operating_Engineer_(Journeyman)	3189 210th Street	Dexter	IA	50070	No	Male	Caucasian_American
16	Hardee	Kevin	Other	4069 SW Lido Dr	Lee's Summit	MO	64082	No	Male	Caucasian_American

Company Name: Ideker, Inc. KCMO Project Name: Construct Taxiway L KCMO Project Number: 62230568

	Name		Job Title (*use drop down menu*)	Address	City	State	Zip Code	KCMO Resident	Gender	Ethnicity
	Last	First								
17	Hernandez	Luis	Laborer_(Journeyman)	415 N Wheeling Ave	Kansas City	MO	64123	No	Male	Hispanic/Latino_American
18	Holsten	Jerry	Foreman/Supervisor	6079 Highway 135	Florence	MO	65329	No	Male	Caucasian_American
19	Holyfield	Danny	Foreman/Supervisor	10731 Cleveland Ave	Kansas City	KS	66109	No	Male	Caucasian_American
20	Ideker	Jordan	Other	4304 Miller Road	St. Joseph	MO	64505	No	Male	Caucasian_American
21	Johnson	Kevin	Other	10085 State Route FF	Agency	MO	64401	No	Male	Caucasian_American
22	Kendall	Brandon	Foreman/Supervisor	17901 SE 14th Road	Dearborn	MO	64439	No	Male	Caucasian_American
23	Lemmons	Daniel	Laborer_(Apprentice)	5928 Indiana	Kansas City	MO	64130	Yes	Male	African_American
24	Lloyd	Gary	Foreman/Supervisor	601 W Broadway St	Plattsburg	MO	64477	No	Male	Caucasian_American
25	Lloyd	Jacob	Operating_Engineer_(Journeyman)	304 Railroad St	Plattsburg	MO	64477	No	Male	Caucasian_American
26	Lloyd	John	Operating_Engineer_(Journeyman)	197 SE 260th St	Plattsburg	MO	64477	No	Male	Caucasian_American
27	Lloyd	Lucas	Operating_Engineer_(Journeyman)	601 W Broadway St	Plattsburg	MO	64477	No	Male	Caucasian_American
28	Marsh	Christopher	Operating_Engineer_(Journeyman)	20003 NE US Hwy 169	Liberty	MO	64068	No	Male	Caucasian_American
29	Martinez	Gerardo	Operating_Engineer_(Journeyman)	4506 County Line Road	Kansas City	KS	66106	No	Male	Hispanic/Latino_American
30	Marz	Robert	Foreman/Supervisor	10361 County Road 2060	Rolla	MO	65401	No	Male	Caucasian_American
31	Mikessell	Nicholas	Laborer_(Journeyman)	3210 North 84th Terrace	Kansas City	KS	66109	No	Male	Caucasian_American
32	Nieves	Sergio	Cement_Mason_(Journeyman)	7415 Royalty Way, Apt. 109	Merriam	KS	66203	No	Male	Hispanic/Latino_American
33	Nims	Angela	Laborer_(Apprentice)	159 Jamar St	Peculiar	Mo	64078	No	Female	Caucasian_American
34	Phillips	Judy	Laborer_(Journeyman)	775 Main Street	Cosby	MO	64436	No	Female	Caucasian_American
35	Pollina	Stephanie	Laborer_(Apprentice)	9421 Carter Dr	Overland Park	KS	66212	No	Female	Caucasian_American
36	Reeves	Jesse	Operating_Engineer_(Journeyman)	603 East Street	Lathrop	MO	64465	No	Male	Caucasian_American
37	Richardson	Mickel	Operating_Engineer_(Journeyman)	214 N Kansas City Ave	Excelsior Springs	MO	64024	No	Male	Caucasian_American
38	Rumpf	Darrin	Operating_Engineer_(Journeyman)	6800 SE Prescher Road	Agency	MO	64401	No	Male	Caucasian_American
39	Sanchez	German	Laborer_(Journeyman)	5017 E 8th St	Kansas City	MO	64124	Yes	Male	Hispanic/Latino_American
40	Suitor	Bruce	Other	PO Box 1781	Independence	MO	64055	No	Male	Caucasian_American
41	Summers	John	Operating_Engineer_(Journeyman)	203 Plattsburg Street	Lathrop	MO	64465	No	Male	Caucasian_American
42	Vroom	Roger	Operating_Engineer_(Journeyman)	101 Ash Street	Lathrop	MO	64465	No	Male	Caucasian_American
43	Weldon	Darrell	Truck_Driver_(Journeyman)	PO Box 270072	Kansas City	MO	64127	Yes	Male	African_American
44	White	Clayton	Other	59517 Hwy C	Russellville	MO	65074	No	Male	Caucasian_American
45	Wilson	David	Other	9020 NE 107th Terrace	Kansas City	MO	64157	Yes	Male	Caucasian_American
46	Wilson	Michael	Foreman/Supervisor	12930 Bethel Terrace	Platte City	MO	64079	No	Male	Caucasian_American
47	Wilson	Ryan	Other	10047 SW 18th Terrace	Towanda	KS	67144	No	Male	Caucasian_American
48										
49										
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51										

Company Name: Ideker, Inc. KCMO Project Name: Construct Taxiway L KCMO Project Number: 62230568

	Name		Job Title (*use drop down menu*)	Address	City	State	Zip Code	KCMO Resident	Gender	Ethnicity
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ATTACHMENT __

AFFIDAVIT OF INTENDED UTILIZATION

(This Form must be submitted with your Bid/Proposal)

62230566/ Taxiway E and Taxiway J Rehabilitation
(Department Project # / Title)

Ideker, Inc.
(Bidder/Proposer)

STATE OF Missouri)
) ss
COUNTY OF Buchanan)

I, Cody Phillips, of lawful age and upon my oath state as follows:

1. This Affidavit is made for the purpose of complying with the provisions of the DBE submittal requirements in the bid/proposal specifications on the above project and is given on behalf of the Bidder/Proposer listed below.

2. Bidder/Proposer assures that it presently intends to utilize the following DBE participation in the above project if awarded the Contract:

PROJECT GOALS: 22.35% DBE
BIDDER/PROPOSER PARTICIPATION: 22.35 % DBE

3. To the best of Bidder's/Proposer's knowledge, the following are the names of certified DBEs with whom Bidder/Proposer, or Bidder's/Proposer's subcontractors, presently intend to contract if awarded the Contract on the above project: ***(All firms must <u>currently</u> be certified by CREO KC.)***

a. Name of DBE Firm Realm Construction Inc.
Address 604 SE Industrial Drive Blue Springs, MO 64014
Telephone No. 816-229-6620
I.R.S. No. 43-1607381
Area/Scope of work Concrete Paving
Subcontract amount $376,888.00

b. Name of DBE Firm RL Hannah & Sons Trucking
Address 28110 SW Outer Road Harrisonville, MO 64701
Telephone No. 816-380-4510
I.R.S. No. 43-1032004
Area/Scope of work Material Supplier
Subcontract amount $1,984,870.00

c. Name of DBE Firm _____
Address _____
Telephone No. _____
I.R.S. No. _____

ATTACHMENT __

AFFIDAVIT OF INTENDED UTILIZATION

(This Form must be submitted with your Bid/Proposal)

62230566/ Taxiway E and Taxiway J Rehabilitation
(Department Project # / Title)

Ideker, Inc.
(Bidder/Proposer)

STATE OF Missouri)
) ss
COUNTY OF Buchanan)

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a. Name of DBE Firm RL Hannah & Sons Trucking
Address 28110 SW Outer Road Harrisonville, MO 64701
Telephone No. 816-380-4510
I.R.S. No. 43-1032004
Area/Scope of work Material Trucking
Subcontract amount $423,360.00

b. Name of DBE Firm Clymore Trucking, CO.
Address 530 Route 291 Independence, MO 64056
Telephone No. 816-225-0649
I.R.S. No. 43-1732246
Area/Scope of work Trucking
Subcontract amount $400,000.00

c. Name of DBE Firm _____
Address _____
Telephone No. _____
I.R.S. No. _____

ATTACHMENT __

AFFIDAVIT OF INTENDED UTILIZATION

(This Form must be submitted with your Bid/Proposal)

62230566/ Taxiway E and Taxiway J Rehabilitation
(Department Project # / Title)

Ideker, Inc.
(Bidder/Proposer)

STATE OF Missouri)
) ss
COUNTY OF Buchanan)

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a. Name of DBE Firm PH Trucking
Address 11512 State HWY U Rogersville, MO 65742
Telephone No. 417-838-9169
I.R.S. No. 45-4702129
Area/Scope of work Trucking
Subcontract amount ~~$295,000.00~~ $457,000.00

b. Name of DBE Firm ~~Pine Valley Contracting~~
Address ~~13586 Sunvalley Lane~~
Telephone No. ~~13586 Cameron Road Excelsior Springs, MO 64024~~
I.R.S. No. ~~43-1508861~~
Area/Scope of work ~~Erosion Control, Seed, Sod & Mulch~~
Subcontract amount ~~$162,000.00~~ $0.00

c. Name of DBE Firm _____
Address _____
Telephone No. _____
I.R.S. No. _____

ATTACHMENT __

AFFIDAVIT OF INTENDED UTILIZATION

(This Form must be submitted with your Bid/Proposal)

62230566/ Taxiway E and Taxiway J Rehabilitation
(Department Project # / Title)

Ideker, Inc.
(Bidder/Proposer)

STATE OF Missouri)
) ss
COUNTY OF Buchanan)

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BIDDER/PROPOSER PARTICIPATION: 22.35 % DBE

3. To the best of Bidder's/Proposer's knowledge, the following are the names of certified DBEs with whom Bidder/Proposer, or Bidder's/Proposer's subcontractors, presently intend to contract if awarded the Contract on the above project: ***(All firms must currently be certified by CREO KC.)***

a. Name of DBE Firm Dye Electrcic
Address 1601 East 18th Street Suite 204 KCMO 64108
Telephone No. 816-944-1393
I.R.S. No. 45-4470721
Area/Scope of work Airfield Electrical Installation
Subcontract amount $139,800.00

b. Name of DBE Firm Dayspring Electric
Address 21170 Stayyard Road Tonganoxie KS 66086
Telephone No. 913-991-8691
I.R.S. No. 33-1167711
Area/Scope of work Airfield Electrical Installation
Subcontract amount $86,200.00

c. Name of DBE Firm Construction Anchors, Inc.
Address 13900 Blue Parkway Kansas City, MO 64139
Telephone No. 816-525-3640
I.R.S. No. 43-0906693

Area/Scope of work Material Supplier Concrete Paving Accessories
Subcontract amount $456,422.00
(List additional DBEs, if any, on additional pages and attach to this form)

4. Bidder/Proposer will identify before contract award, those DBE subcontractors with dollar amounts and scopes of work which apply to or exceed the DBE goals for the Project on the ***Contractor Utilization Plan/Request for Waiver (CREO KC 08)***.

5. Bidder/Proposer agrees that failure to meet or exceed the DBE Goals for the above project will automatically render this bid/proposal non-responsive if Bidder/Proposer fails to establish good faith efforts towards meeting the goals as set forth in the CREO KC Forms and Instructions.

6. If applicable, Bidder/Proposer assures that it will meet or exceed the minimum employment goals of 12.7% minority and 6.9% women during the term of its contract with City, or request a waiver of the goals. **NOTE: This paragraph is applicable ONLY if you are submitting a bid/proposal on a construction contract that was estimated by the City, prior to solicitation, as requiring more than 800 construction labor hours and costing in excess of $300,000.00.**

7. I am authorized to make this Affidavit on behalf of the Bidder/Proposer named below as:

Vice President (Title) of Ideker, Inc. (Name of Bidder/Proposer)

Dated: 03-21-2023 By: C Phil (Affiant)

Subscribed and sworn to before me this 21st day of March, 2023.

My Commission Expires: 8/16/2025

Notary Public

PEGGY KENDZORA
MY COMMISSION EXPIRES
8-16-2025
NOTARY SEAL
#12637644
BUCHANAN COUNTY
NOTARY PUBLIC, STATE OF MISSOURI

CREO KC MONTHLY REPORTING INSTRUCTIONS

DBE Monthly Utilization Report Instructions

1. DBE Reporting applies to Contracts that have approved DBE goals assigned.

2. The City will utilize a web based DBE Reporting System in the administration of this Contract. This web based application database is a collaboration tool selected and provided by City, which will allow Contractors and Consultants/Subcontractors and Subconsultants to enter data and report on compliance.

Prevailing Wage Certified Payroll Report Instructions

1. Prevailing Wage Certified Payroll Report applies to Contracts that include Prevailing Wage or Davis Bacon Provisions.

2. This web based application database is provided by City for reporting certified payrolls and other related prevailing wage data.

3. Computer Requirements: Minimum Intel Pentium® 4 Processor 2.4 GHz or equivalent processor with 512MB of RAM; recommended Centrino Duo® Processors 1.6 GHz or equivalent with 2GB of RAM, or higher.

    a. Computer Operation System: Windows XP, Windows Vista, or Windows 7
    b. Web Browser: Google Chrome
    c. Connection Speed/Minimum Bandwidth: DSL, ADSL or T1 Line for transferring a minimum of 3 Mbps Downstream and 512 Kbps Upstream

4. City will assist Contractor in providing training of personnel and Subcontractor's personnel.

5. Contractor and Subcontractors shall have the responsibility for visiting the web site and entering data in on timely basis, and as necessary to be in compliance with Prevailing Wage Requirements included in their contracts.

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

PRE-CONTRACT BIDDER'S CERTIFICATION

Project Number 62230566

Project Title Taxiway E and Taxiway J Rehabilitation

STATE OF Missouri)
) SS
COUNTY OF Buchanan)

Before me, the undersigned authority, personally appeared, who, being by me duly sworn deposed as follows:

I am authorized to make this affidavit on behalf of the named Bidder. I am of sound mind, capable of making this affidavit, and personally acquainted with the facts herein stated:

A. Bidder is current on payment of its Federal and State Income tax withholding and unemployment insurance payments, either in Missouri for companies doing business in Missouri, or in the state in which Bidder has its principal office; and

B. Bidder declares one of the following, regarding all work performed three years immediately preceding the date of the Bid (check one):

☐ Contract by contract listing of all of Bidder's written notices of violations of any Federal or State prevailing wage statute in which prevailing wage penalties were assessed against the Bidder or paid by the Bidder (Complete and attach additional sheets if necessary):

1. _____
2. _____
3. _____

☒ There have been no written notices of violations of any Federal or State prevailing wage statute in which prevailing wage penalties were assessed against the Bidder or paid by the Bidder.

C. Bidder is currently in good standing with the Missouri Secretary of State or Bidder has filed a Registration of Fictitious Name with the Missouri Secretary of State.

Ideker, Inc. — (Bidder's Name)

3/21/2023 — (Date)

[signature] — Signature of Person Making This Affidavit

In witness whereof, I have hereunto subscribed my name and affixed my official seal this 21 day of March, 2023

03/06/2026

[signature]

CIJAY SMITH
Comm. Exp. 03/06/2026
NOTARY PUBLIC NOTARY SEAL #22010373
Buchanan County
STATE OF MISSOURI

EMPLOYEE ELIGIBILITY VERIFICATION AFFIDAVIT

(Required for any contract with the City of Kansas City, Missouri in excess of $5,000.00)

STATE OF Missouri)
) ss
COUNTY OF Buchanan)

On this 3rd day of April, 2023, before me appeared Cody Phillips, personally known by me or otherwise proven to be the person whose name is subscribed on this affidavit and who, being duly sworn, stated as follows:

I am of sound mind, capable of making this affidavit, and personally swear or affirm that the statements made herein are truthful to the best of my knowledge. I am the Vice President (title) of Ideker, Inc. (business entity) and I am duly authorized, directed or empowered to act with full authority on behalf of the business entity in making this affidavit.

I hereby swear or affirm that the business entity does not knowingly employ any person in connection with the contracted services who does not have the legal right or authorization under federal law to work in the United States as defined in 8 U.S.C. § 1324a(h)(3).

I hereby additionally swear or affirm that the business entity is enrolled in an electronic verification of work program operated by the United States Department of Homeland Security (E-Verify) or an equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, under the Immigration Reform and Control Act of 1986, and that the business entity will participate in said program with respect to any person hired by the business entity to perform any work in connection with the contracted services. I have attached hereto documentation sufficient to establish the business entity's enrollment and participation in the required electronic verification of work program.

I am aware and recognize that unless certain contractual requirements are satisfied and affidavits obtained as provided in Section 285.530, RSMo, the business entity may face liability for violations committed by its subcontractors, notwithstanding the fact that the business entity may itself be compliant.

I acknowledge that I am signing this affidavit as the free act and deed of the business entity and that I am not doing so under duress.

Affiant's signature

Subscribed and sworn to before me this 3rd day of April, 2023.

Notary Public

CIJAY SMITH
Comm. Exp. 03/06/2026
NOTARY PUBLIC NOTARY SEAL #22010373
Buchanan County
STATE OF MISSOURI

My Commission expires: 03/06/2026

E-Verify™

Company ID Number: 178499

To be accepted as a participant in E-Verify, you should only sign the Employer's Section of the signature page. If you have any questions, contact E-Verify at 888-464-4218.

Employer IDEKER, INC.

BRIDGETTE SANDER Name (Please Type or Print)	Title
Electronically Signed Signature	01/09/2009 Date

Department of Homeland Security – Verification Division

USCIS Verification Division Name (Please Type or Print)	Title
Electronically Signed Signature	01/09/2009 Date

E-Verify

Company ID Number: 178499

- KANSAS 1 site(s)

Information relating to the Program Administrator(s) for your Company on policy questions or operational problems:

Name:	BRIDGETTE D SANDER		
Telephone Number:	(816) 364 - 3970	Fax Number:	(816) 364 - 4783
E-mail Address:	bridgette@ideker.net		

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

CONTRACT REQUIRED SUBMISSIONS

Project/Contract Number: 62230566

Project/Contract Title/Description: Taxiway E and Taxiway J Rehabilitation

These instructions are to assist Contractor in providing all necessary documents to enter into a contract with the City.

MISSOURI SECRETARY OF STATE BUSINESS ENTITY REGISTRATION

- ☐ For a corporation, current Certificate of Good Standing from the Missouri Secretary of State ((816) 889-2925 or (816) 889-2926 or a web site print-out, dated no more than ninety (90) days before the date furnished to the City – One Copy.
- ☐ For a business that is not a corporation and not doing business in the exact name of the proprietor, a copy from the Secretary of State, ((816) 889-2925 or (816) 889-2926 of the filed Registration of Fictitious Name dated no more than ninety (90) days before the date furnished to the City – One Copy.

EMPLOYEE ELIGIBILITY VERIFICATION AFFIDAVIT [Required if the contract exceeds $5,000.00]

- ☐ 00515.01 Employee Eligibility Verification Affidavit – One Executed Affidavit
- ☐ First and last pages of the E-Verify Program Memorandum of Understanding that your company has received from the U.S. Department of Homeland Security verifying enrollment in the program. For assistance, contact E-Verify Operations at 888-464-4218 – One Copy.

SUBCONTRACTORS LISTING [Applicable form provided]

- ☐ Non-Construction Subcontractors List – One Copy
- ☐ 01290.09 Subcontractors & Major Material Suppliers List – One Copy

PAYMENT BONDS (If applicable)

- ☐ Each copy of the Payment bond must be signed and properly dated by the following, as applicable:

  Corporation - A corporate officer authorized to sign on behalf of the corporation and the signature must be attested by a witness to the signature; OR

  Limited Liability Company - A member of the limited liability company authorized to sign on behalf of the company and a witness to the signature must attest the signature; OR

  Partnership - A partner authorized to sign on behalf of the partnership and the signature must be attested by a witness to the signature; OR

  Sole Proprietor - By the proprietor and the signature must be attested by a witness to the signature; OR

  Joint Venture - The parties to the Joint Venture authorized to sign on behalf of each party to the Joint Venture, or a person authorized by each party to the Joint Venture to sign on behalf of all parties to the Joint Venture; AND

  Surety - A person authorized by the Surety to sign on behalf of the Surety. A power of attorney issued by the Surety Company authorizing its representative to sign the

Agreement must be attached to the Agreement and each copy.

PERFORMANCE AND MAINTENANCE BOND (If applicable)

☐ As applicable, each copy of the Performance and Maintenance bond must be signed and properly dated by:

Corporation - A corporate officer authorized to sign on behalf of the corporation and the signature must be attested by a witness to the signature; OR

Limited Liability Company - A member of the limited liability company authorized to sign on behalf of the company and a witness to the signature must attest the signature; OR

Partnership - A partner authorized to sign on behalf of the partnership and the signature must be attested by a witness to the signature; OR

Sole Proprietor - By the proprietor and the signature must be attested by a witness to the signature; OR

Joint Venture - The parties to the Joint Venture authorized to sign on behalf of each party to the Joint Venture, or a person authorized by each party to the Joint Venture to sign on behalf of all parties to the Joint Venture; AND

Surety - A person authorized by the Surety to sign on behalf of the Surety. A power of attorney issued by the Surety Company authorizing its representative to sign the Agreement must be attached to the Agreement and each copy.

CERTIFICATES OF INSURANCE [Sample form provided] - If you have any questions regarding requirements for insurance certificates, please contact the City's Risk Management Office, 816 513-1299.

☐ Provide a certificate of insurance for all insurance that may be required in the contract such as:

Commercial General Liability
Workers' Compensation and Employers' Liability
Commercial Automobile Liability
Railroad Protective Liability
Environmental Liability
Asbestos Liability
Longshoremen's Insurance
Property Insurance

☐ List the NAIC Number (National Association of Insurance Commissioners) or A.M. Best Number for each Insurer listed on the Certificate of Insurance.

☐ Certificate "Kansas City, Missouri" must named as an Additional Insured.

☐ Check the insurance requirements of the Contract. If Contract Documents require that other entities be included as additional insureds, each entity shall be listed on the certificate(s).

☐ Description of Operations must include Project/Contract Number and Project/Contract Title/Description as contained in the Contract Documents. The Certificate Holder and address block shall be completed as follows:

Kansas City, Missouri
[Aviation]
[Mallie Koehler]
[601 Brasilia Ave.]
Kansas City, Missouri [64153]

☐ If your insurance agent prepares an ACORD form, the automobile insurance must be "any auto" or better for acceptance by the City.

PRE-CONTRACT BIDDER'S CERTIFICATION (Prevailing Wage Contracts; Form provided)

☐ Submit form 00490 - Bidder's Pre-Contract Certification (provided).

HEALTH AND SAFETY PLAN (If applicable)

☐ Bidder's Health and Safety Plan – One copy or one CD Rom.

State of Missouri

EXEMPTION FROM MISSOURI SALES AND USE TAX ON PURCHASES

Issued to:

CITY OF KANSAS CITY
414 E 12TH ST 3RD FLOOR
KANSAS CITY MO 64106

Missouri Tax ID Number: 12490466

Effective Date: 07/11/2002

Your application for sales/use tax exempt status has been approved pursuant to Section 144.030.1, RSMo. This letter is issued as documentation of your exempt status.

Purchases by your Agency are not subject to sales or use tax if within the conduct of your Agency's exempt functions and activities. When purchasing with this exemption, furnish all sellers or vendors a copy of this letter. This exemption may not be used by individuals making personal purchases.

A contractor may purchase and pay for construction materials exempt from sales tax when fulfilling a contract with your Agency only if your Agency issues a project exemption certificate and the contractor makes purchases in compliance with the provisions of Section 144.062, RSMo.

Sales by your Agency are subject to all applicable state and local sales taxes. If you engage in the business of selling tangible personal property or taxable services at retail, you must obtain a Missouri Retail Sales Tax License and collect and remit sales tax.

This is a continuing exemption subject to legislative changes and review by the Director of Revenue. If your Agency ceases to qualify as an exempt entity, this exemption will cease to be valid. This exemption is not assignable or transferable. It is an exemption from sales and use taxes only and is not an exemption from real or personal property tax.

Any alteration to this exemption letter renders it invalid.

If you have any questions regarding the use of this letter, please contact the Division of Taxation and Collection, P.O. Box 3300, Jefferson City, MO 65105-3300, phone 573-751-2836.

(DI6030)

Reset Form Print Form

Form **5060**

Missouri Department of Revenue
Project Exemption Certificate

This form is to be completed and given to your contractor.

Exempt Entity and Project Information

Name of Exempt Entity Issuing the Certificate			Missouri Tax Exemption Number
City of Kansas City, Missouri - Aviation Department			1 2 4 9 0 4 6 6
Address	**City**	**State**	**ZIP Code**
601 Brasilia Avenue	Kansas City	MO	64153
E-mail Address			
____@kcmo.org			
Project Number	**Project Begin Date (MM/DD/YYYY)**		**Estimated Project End Date (MM/DD/YYYY)**
	___ ___ / ___ ___ / ___ ___ ___ ___		___ ___ / ___ ___ / ___ ___ ___ ___
Description of Project			
Project Location			**Certificate Expiration Date (MM/DD/YYYY)**
Kansas City International or Charles B. Wheeler Downtown Airport			___ ___ / ___ ___ / ___ ___ ___ ___

Provide a signed copy of this certificate, along with a copy of the exempt entity's Missouri Sales and Use Tax Exemption Letter to each contractor or subcontractor who will be purchasing tangible personal property for use in this project. It is the responsibility of the exempt entity to ensure the validity of the information on the certificate. The exempt entity must issue a new certificate if any of the information changes.

Signature of Authorized Exempt Entity	Printed Name of Authorized Exempt Entity	Date (MM/DD/YYYY)
		___ ___ / ___ ___ / ___ ___ ___ ___

Contractor

The Missouri exempt entity named above hereby authorizes the purchase, without sales tax, of tangible personal property to be incorporated or consumed in the construction project identified herein and no other, pursuant to **Section 144.062, RSMo.** Under penalties of perjury, I declare that the above information and any attached supplement is true, complete, and correct.

Name of Purchasing Contractor	Signature of Contractor	Date (MM/DD/YYYY)
		___ ___ / ___ ___ / ___ ___ ___ ___

Address	City	State	ZIP Code

Subcontractor

Contractors - Present this to your supplier in order to purchase the necessary materials tax exempt. Complete the Subcontractor portion if extending the certificate to your subcontractor. The contractor must sign the form in the space provided below.

Name of Purchasing Subcontractor			
Address	**City**	**State**	**ZIP Code**

Signature of Contractor	Contractor's Printed Name	Date (MM/DD/YYYY)
		___ ___ / ___ ___ / ___ ___ ___ ___

Form 5060 (Revised 08-2015)

Taxation Division
P.O Box 358
Jefferson City, MO 65105-0358

Phone: (573) 751-2836
Fax: (573) 522-1271
E-mail: salestaxexemptions@dor.mo.gov

Visit **http://dor.mo.gov/business/sales/sales-use-exemptions.php** for additional information.

Bond No.: 674218439

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

PERFORMANCE AND MAINTENANCE BOND

Project Number 62230566

Project Title Taxiway E and Taxiway J Rehab

KNOW ALL MEN BY THESE PRESENTS: That Ideker, Inc., as PRINCIPAL (CONTRACTOR), and Liberty Mutual Insurance Company, (SURETY), licensed to do business as such in the State of Missouri, hereby bind themselves and their respective heirs, executors, administrators, successors, and assigns unto Kansas City, Missouri, a constitutionally chartered municipal corporation, (OWNER), as obligee, in the penal sum of Fourteen Million Nine Hundred Seventy Nine Thousand Nine Hundred Sixty Seven Dollars and 10/100 Dollars ($ 14,979,967.10) for the payment whereof CONTRACTOR and SURETY bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

CONTRACTOR has entered into a Contract with OWNER for 62230566 - Taxiway E and Taxiway J Rehab which Contract, including any present or future amendment thereto, is incorporated herein by reference and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if CONTRACTOR shall promptly and faithfully perform said Contract including all duly authorized changes thereto, and including any maintenance requirements contained therein, according to all the terms thereof, including those under which CONTRACTOR agrees to pay legally required wage rates including the prevailing hourly rate of wages in the locality, as determined by the Department of Labor and Industrial Relations or by final judicial determination, for each craft or type of workman required to execute the Contract and, further, shall defend, indemnify, and hold harmless OWNER from all damages, including but not limited to, liquidated damages, loss and expense occasioned by any failure whatsoever of said CONTRACTOR and SURETY to fully comply with and carry out each and every requirement of the Contract, then this obligation shall be void; otherwise, it shall remain in full force and effect.

WAIVER. That SURETY, for value received, hereby expressly agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the Work to be performed thereunder, shall in any way affect the obligations of this Bond; and it does hereby waive notice of any such change, extension of time, or alteration or addition to the terms of the Contract or the Work to be performed thereunder.

IN WITNESS WHEREOF, the above parties have executed this instrument the 4th day of April, 2023.

CONTRACTOR
Name, address and facsimile number of Contractor
Ideker, Inc.
P.O. Box 7140
St. Joseph, MO 64507
816.364.4783

I hereby certify that I have authority to execute this document on behalf of Contractor.

By: [signature]
Title: Vice President

(Attach corporate seal if applicable)

SURETY
Name, address and facsimile number of Surety:
Liberty Mutual Insurance Company
175 Berkeley Street
Boston, MA 02116
617.574.5955

I hereby certify that (1) I have authority to execute this document on behalf of Surety; (2) Surety has an A.M. Best rating of A-, V, or better; (3) Surety is named in the current list of "Companies Holding Certificates of Authority as Acceptable Reinsuring Companies: as published in Circular 570 (most current revision) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury; and (4) Surety is duly licensed to issue bonds in the State of Missouri and in the jurisdiction in which the Project is located.

By: _____
Title: Sandra Burnett , Attorney-in-Fact
Date: April 4, 2023



(Attach seal and Power of Attorney)

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated. Not valid for mortgage, note, loan, letter of credit, bank deposit, currency rate, interest rate or residual value guarantees. For bond and/or Power of Attorney (POA) verification inquiries, please call 610-832-8240 or email HOSUR@libertymutual.com.

Liberty Mutual. SURETY

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Sandra Burnett of the city of Kansas City, state of MO its true and lawful attorney-in-fact, with full power and authority hereby conferred to sign, execute and acknowledge the following surety bond:

Principal Name: Ideker, Inc.

Obligee Name: Kansas City Aviation Department, City of Kansas City, Missouri

Surety Bond Number: 674218439 **Bond Amount:** See Bond Form

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 12th day of March, 2021.

LIBERTY MUTUAL INSURANCE COMPANY INCORPORATED 1912 MASSACHUSETTS

THE OHIO CASUALTY INSURANCE COMPANY INCORPORATED 1919 NEW HAMPSHIRE

WEST AMERICAN INSURANCE COMPANY INCORPORATED 1991 INDIANA

The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
West American Insurance Company

By: _____
David M. Carey, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 12th day of March, 2021, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.

TERESA PASTELLA COMMONWEALTH OF PENNSYLVANIA NOTARY PUBLIC

Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2025
Commission number 1126044
Member, Pennsylvania Association of Notaries

By: _____
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of Liberty Mutual Insurance Company, The Ohio Casualty Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS – Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts – SECTION 5. Surety Bonds and Undertakings. Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, of Liberty Mutual Insurance Company, The Ohio Casualty Insurance Company, and West American Insurance Company do hereby certify that this power of attorney executed by said Companies is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 4th day of April, 2023.

LIBERTY MUTUAL INSURANCE COMPANY INCORPORATED 1912 MASSACHUSETTS

THE OHIO CASUALTY INSURANCE COMPANY INCORPORATED 1919 NEW HAMPSHIRE

WEST AMERICAN INSURANCE COMPANY INCORPORATED 1991 INDIANA

By: _____
Renee C. Llewellyn, Assistant Secretary

Bond No.: 674218439

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

PAYMENT BOND

Project Number 62230566

Project Title Taxiway E and Taxiway J Rehab

KNOW ALL MEN BY THESE PRESENTS: That Ideker, Inc., as PRINCIPAL (CONTRACTOR), and Liberty Mutual Insurance Company, (SURETY), licensed to do business as such in the State of Missouri, hereby bind themselves and their respective heirs, executors, administrators, successors, and assigns unto Kansas City, Missouri, a constitutionally chartered municipal corporation, (OWNER), as obligee, in the penal sum of Fourteen Million Nine Hundred Seventy Nine Thousand Nine Hundred Sixty Seven Dollars and 10/100 Dollars ($14,979,967.10) for the payment whereof CONTRACTOR and SURETY bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

CONTRACTOR has entered into a contract with OWNER for 62230566 - Taxiway E and Taxiway J Rehab, which Contract, including any present or future amendment thereto, is incorporated herein by reference and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if in connection with the Contract, including all duly authorized modifications thereto, prompt payment shall be made to all laborers, subcontractors, teamsters, truck drivers, owners or other suppliers or for equipment employed on the job, and other claimants, for all labor performed in such work whether done for CONTRACTOR, a subcontractor, SURETY, a completion contractor or otherwise (at the full wage rates required by any law of the United States or of the State of Missouri, where applicable), for services furnished and consumed, for repairs on machinery, for equipment, tools, materials, lubricants, oil, gasoline, water, gas, power, light, heat, oil, telephone service, grain, hay, feed, coal, coke, groceries and foodstuffs, either consumed, rented, used or reasonably required for use in connection with the construction of the work or in the performance of the Contract and all insurance premiums, both for compensation and for all other kinds of insurance on the work, for sales taxes and for royalties in connection with, or incidental to, the completion of the Contract, in all instances whether the claim be directly against CONTRACTOR, against SURETY or its completion contractor, through a subcontractor or otherwise, and, further, if CONTRACTOR shall defend, indemnify and hold harmless OWNER from all such claims, demands or suits by any such person or entity, then this obligation shall be void; otherwise, it shall remain in full force and effect.

Any conditions legally required to be included in a Payment Bond on this Contract, including but not limited to those set out in §107.170 RSMo.are included herein by reference.

SURETY agrees that, in the event that CONTRACTOR fails to make payment of the obligations covered by this Bond, it will do so and, further, that within forty-five (45) days of receiving, at the address given below, a claim hereunder stating the amount claimed and the basis for the claim in reasonable detail, it (a) will send an answer to the claimant, with a copy to OWNER stating the amounts that are undisputed and the basis for challenging any amounts that are disputed, and (b) will pay any amounts that are undisputed. The amount of this Bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder.

While this Bond is in force, it may be sued on at the instance of any party to whom any such payment is due, in the name of OWNER to the use for such party. OWNER shall not be liable for the payment of any costs or expenses of any such suit.

No suit shall be commenced or pursued hereunder other than in a state court of competent jurisdiction in Jackson, Clay or Platte County, Missouri, or in the United States District Court for the Western District of Missouri.

WAIVER. That SURETY, for value received, hereby expressly agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the Work to be performed thereunder, shall in any way affect the obligations of this Bond; and it does hereby waive notice of any such change, extension of time, or alteration or addition to the terms of the Contract or the Work to be performed thereunder.

IN WITNESS WHEREOF, the above parties have executed this instrument the 4th day of April, 2023.

CONTRACTOR
Name, address and facsimile number of Contractor
Ideker, Inc.
P.O. Box 7140
St. Joseph, MO 64507
816.364.4783

I hereby certify that I have authority to execute this document on behalf of Contractor.

By: [signature]
Title: Vice President

(Attach corporate seal if applicable)

SURETY
Name, address and facsimile number of Surety:
Liberty Mutual Insurance Company
175 Berkeley Street
Boston, MA 02116
617.574.5955

I hereby certify that (1) I have authority to execute this document on behalf of Surety; (2) Surety has an A.M. Best rating of A-. or better; (3) Surety is named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (most current revision) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury; and(4) Surety is duly licensed to issue bonds in the State of Missouri and in the jurisdiction in which the Project is located.

By: [signature]
Title: Sandra Burnett, Attorney-in-Fact
Date: April 4, 2023

LIBERTY MUTUAL INSURANCE COMPANY INCORPORATED 1912 MASSACHUSETTS

(Attach seal and Power of Attorney)

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated. Not valid for mortgage, note, loan, letter of credit, bank deposit, currency rate, interest rate or residual value guarantees. For bond and/or Power of Attorney (POA) verification inquiries, please call 610-832-8240 or email HOSUR@libertymutual.com.

Liberty Mutual. SURETY

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Sandra Burnett of the city of Kansas City, state of MO its true and lawful attorney-in-fact, with full power and authority hereby conferred to sign, execute and acknowledge the following surety bond:

Principal Name: Ideker, Inc.

Obligee Name: Kansas City Aviation Department, City of Kansas City, Missouri

Surety Bond Number: 674218439 **Bond Amount:** See Bond Form

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 12th day of March, 2021.

The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
West American Insurance Company

By: _____
David M. Carey, Assistant Secretary

STATE OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 12th day of March, 2021, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.

Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2025
Commission number 1126044
Member, Pennsylvania Association of Notaries

By: _____
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of Liberty Mutual Insurance Company, The Ohio Casualty Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS – Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts – SECTION 5. Surety Bonds and Undertakings. Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, of Liberty Mutual Insurance Company, The Ohio Casualty Insurance Company, and West American Insurance Company do hereby certify that this power of attorney executed by said Companies is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 4th day of April, 2023.

By: _____
Renee C. Llewellyn, Assistant Secretary

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 4/3/2023

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Kansas City, MO-Truss LLC-Hub International Mid-America
9200 Ward Pkwy
Suite 500
Kansas City MO 64114

License#: 100101891

CONTACT NAME: Certificate Department
PHONE (A/C, No, Ext): 816-708-4600 **FAX (A/C, No):** 816-817-5706
E-MAIL ADDRESS: HUB-KC.Certificates@HUBInternational.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Travelers Property Casualty Company of America	25674
INSURER B : The Travelers Indemnity Company of America	25666
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

INSURED
Ideker, Inc.
4614 South 40th Street
St. Joseph MO 64503
IDEKINC-01

COVERAGES **CERTIFICATE NUMBER:** 513916269 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X **COMMERCIAL GENERAL LIABILITY** [ ] CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [X] PRO-JECT [ ] LOC [ ] OTHER:	Y	Y	VTC2JCO2793C087	7/1/2022	7/1/2023	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 300,000 $ 5,000 $ 1,000,000 $ 2,000,000 $ 2,000,000
A	**AUTOMOBILE LIABILITY** X ANY AUTO [ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS X HIRED AUTOS ONLY X NON-OWNED AUTOS ONLY	Y	Y	VTC2JCAP2793C063	7/1/2022	7/1/2023	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
A	X **UMBRELLA LIAB** X OCCUR **EXCESS LIAB** [ ] CLAIMS-MADE [ ] DED X RETENTION $ 10,000	Y	Y	CUP2793C39A2125	7/1/2022	7/1/2023	EACH OCCURRENCE AGGREGATE	$ 25,000,000 $ 25,000,000
B	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** Y / N ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? N **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		UB9M8906662225D	7/1/2022	7/1/2023	X PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Re: Project No. 62230566 - Taxiway E and Taxiway J Rehab, Kansas City International Airport; City of Kansas City Missouri, HNTB Corporation, Lapondzia Jones and all others are required by the Contract documents are Additional Insured as respects the General, Auto and Umbrella Liability policies, coverage applies on a Primary, Non-Contributory basis. General liability Additional Insured includes coverage for ongoing & completed operations. Waiver of Subrogation applies in favor of Additional Insured as respects General, Auto and Umbrella Liability when required by written contract, per policy provisions. 30 day cancellation notice to the certificate holder, 10 days for non-payment when required by written contract.

CERTIFICATE HOLDER

City of Kansas City Missouri Aviation Department
601 Brasilia Ave
Kansas City MO 64153

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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STATE OF MISSOURI

John R. Ashcroft
Secretary of State

CORPORATION DIVISION
CERTIFICATE OF GOOD STANDING

I, JOHN R. ASHCROFT, Secretary of State of the State of Missouri, do hereby certify that the records in my office and in my care and custody reveal that

IDEKER, INC.
00150056

was created under the laws of this State on the 14th day of September, 1971, and is in good standing, having fully complied with all requirements of this office.

IN TESTIMONY WHEREOF, I hereunto set my hand and cause to be affixed the GREAT SEAL of the State of Missouri. Done at the City of Jefferson, this 1st day of March, 2023.

Secretary of State

Certification Number: CERT-03012023-0019

KANSAS CITY
MISSOURI

Finance Department

Revenue Division

414 E 12th St. 1st Floor
Kansas City, MO 64106-2786

Phone: (816) 513-1120
Fax: (816) 513-1264
Email: revenue@kcmo.org
Website: kcmo.gov/tax

Letter Id: L0731824896
Date: 16-Feb-2023
Taxpayer Id: **-***7060

IDEKER INC
4614 S 40TH ST
SAINT JOSEPH MO 64503-2151

TAX CLEARANCE STATUS: APPROVED

As of this date, this notice is to inform you that IDEKER INC is current with all taxes and license fees with the City of Kansas City, Mo., Finance Department/ Revenue Division.

Please note this could change if we perform a full review of your accounts in the future. We will let you know if we need to review your accounts. You will need to pay any amounts that are found due at that time.

Mari Ruck
Commissioner of Revenue

Visit kcmo.gov/quicktax to view the status of your account and for online filing.

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

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ARTICLE 1 DEFINITIONS AND TERMINOLOGY

1.01 Defined Terms

A. Wherever used in these General Conditions or in the other Contract Documents, the following terms have the meanings indicated which are applicable to both the singular and plural thereof:

1. Addenda - Written or graphic instruments issued prior to the opening of Bids that clarify, correct or change the Bidding Requirements or the Contract Documents.

2. Agreement—The written Contract between CITY and CONTRACTOR governing the Work to be performed; other Contract Documents are attached to the Agreement and made a part thereof as provided therein.

3. Application for Payment—The form accepted by CITY's Representative which is to be used by CONTRACTOR in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. Asbestos - Any material that contains more than one percent (1%) Asbestos and is friable or is releasing Asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. Bid- The offer or proposal of the Bidder submitted on the Bid Form/Contract setting forth the prices for the Work to be performed. A Bidder's Bid becomes a Contract with CITY if the CITY executes the Bid Form/Contract submitted by Bidder. If the CITY executes the Bid Form/Contract submitted by Bidder, the term "Bidder" shall mean CONTRACTOR.

6. Bidder- One who submits a Bid directly to CITY, as distinct from a sub-bidder who submits a bid to a Bidder. If the CITY executes the Bid Form/Contract submitted by Bidder, the term "Bidder" shall mean CONTRACTOR in both the Bidding Documents and Contract Documents unless the context clearly indicates otherwise.

7. Bidding Documents- The advertisement or Invitation to Bid, Instructions to Bidders, the Bid Form/Contract, and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

8. Bidding Requirements- The advertisement or invitation to bid, Instructions to Bidders, Bid security, and the Bid Form/Contract with any supplements.

9. Bonds- Payment Bond and Performance and Maintenance Bond and other instruments of security.

10. Calendar Day- Any day shown on the calendar, including Saturdays, Sundays, and holidays.

11. Change Order- A written document issued by CITY that authorizes an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Contract.

12. CITY/OWNER- Kansas City, Missouri, a constitutionally chartered municipal corporation, with which CONTRACTOR has entered into the Contract and for whom the Work is to be provided**.**

13. CITY's Representative- Person or agency designated to act for the Director as provided in these Contract Documents.

14. Consultant- Person, firm or corporation having a contract with CITY or DESIGN PROFESSIONAL to furnish services as an independent professional associate or Consultant with respect to the Project and who's identified as such in the Supplementary Conditions.

The Consultant(s) is identified and their seals affixed on the Certification Page(s). The certifications describe the respective responsibilities for the Drawings and Specifications prepared by the Consultant(s) and are incorporated into this Contract.

15. Contract- The entire and integrated written agreement between CITY and CONTRACTOR concerning the Work that incorporates all Contract Documents. The Bid Form/Contract submitted by Bidder is the Contract between CITY and CONTRACTOR upon execution by CITY. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

16. Contract Documents- The Contract Documents establish the rights and obligations of the parties and include the Contract, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid Form/Contract (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Intent to Contract), the Construction Project Instructions, the Contractor's Utilization Plan/Request for Waiver, the Notice to Proceed, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Project Manual and the certification page(s) of the DESIGN PROFESSIONAL and Consultant(s), together with approved project baseline schedule and amendments thereto and all Written Amendments, Change Orders, Work Change Directives, and DESIGN PROFESSIONAL's written interpretations and clarifications issued on or after the Effective Date of the Contract, and approved Shop Drawings. Reports and drawings of subsurface and physical conditions are not Contract Documents. Only printed or hard copies of the items listed in this Paragraph are Contract Documents. Files in electronic media format of text, data, graphics, and the like that may be furnished by CITY to CONTRACTOR are not Contract Documents, except project schedules submitted by CONTRACTOR and approved by CITY.

17. Contract Price- The money payable by CITY to CONTRACTOR for completion of the Work in accordance with the Contract Documents as stated in the Agreement.

18. Contract Times- The number of days or the dates stated in the Supplementary Conditions: (a) to achieve Substantial Completion, and (b) to complete the Work so that it is ready for final payment as evidenced by CITY's Representative's written recommendation of final payment.

19. CONTRACTOR- The person, firm, partnership, company, corporation or association licensed or otherwise authorized by law to do business in Missouri, with whom CITY has entered into the Agreement.

20. Day– Shall constitute a Calendar Day.

21. DESIGN PROFESSIONAL- Architect, Engineer or other licensed professional who is either employed by or has contracted with CITY to serve in a design capacity and whose Consultants, members, partners, employees or agents have prepared and sealed the Drawings and Specifications.

The DESIGN PROFESSIONAL(s) is identified and their seals affixed on the Certification Page(s). The certifications describe the respective responsibilities for the Drawings and Specifications prepared by the DESIGN PROFESSIONAL and are incorporated into this Contract.

22. DESIGN PROFESSIONAL's Project Representative- The authorized representative of DESIGN PROFESSIONAL who may be assigned to the Site or any part thereof.

23. Director- The term Director shall mean the duly appointed executive officer of a department of City who is empowered by the City Charter or by the City Council to enter into a contract on behalf of City, or to grant a permit for improvements to land owned by City. A Director is authorized to delegate this authority to a City employee so designated in writing.

24. Drawings- The drawings which graphically show the scope, extent and character of the Work to be furnished and performed by CONTRACTOR and which have been prepared by DESIGN PROFESSIONAL and are included in the Contract Documents. Shop Drawings are not Drawings as so defined.

25. Effective Date of the Contract- The date indicated in the Contract on which it becomes effective, but if no such date is indicated it means the date on which the Contract is fully executed by CITY.

26. General Requirements- Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

27. Hazardous Environmental Condition- The presence at the Site of Asbestos, Lead-Based Paint, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

28. Hazardous Waste- The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

29. Laws or Regulations- Any and all applicable laws, rules, regulations, ordinances, codes and orders of any and all governmental bodies, agencies, authorities and courts having jurisdiction.

30. Lead-Based Paint- Any paint, varnish, stain, or other applied coating that has one (1) mg or more of lead per square centimeter. The terms “leaded paint” and “lead-containing paint” are synonymous with Lead-Based Paint.

31. Liens- Liens, charges, security interests or encumbrances upon real property or personal property.

32. Milestone- A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

33. Notice of Intent to Contract- The written notice by CITY to the apparent successful Bidder stating that upon compliance by that apparent successful Bidder with the conditions in the Bid Documents enumerated, within the time specified, and upon enactment of an appropriate ordinance or resolution, CITY will sign and deliver the Contract.

34. Notice to Proceed- A written notice given by CITY to CONTRACTOR fixing the date on which the Contract Times will commence to run and on which CONTRACTOR shall start to perform CONTRACTOR’s obligations under the Contract Documents.

35. Partial Utilization- Use by CITY of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.

36. PCBs- Polychlorinated biphenyls.

37. Petroleum- Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Wastes and crude oils.

38. Project- The total construction of which the Work to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

39. Project Manual- The documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual may be issued in one or more volumes and is contained in the table(s) of contents.

40. Radioactive Material- Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

41. Samples- Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

42. Shop Drawings- All drawings, diagrams, illustrations, schedules and other data or information which are specifically prepared or assembled by or for CONTRACTOR and submitted by CONTRACTOR to illustrate some portion of the Work.

43. Site- Lands or areas indicated in the Contract Documents as being furnished by CITY upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by CITY which are designated for the use of CONTRACTOR.

44. Specifications- Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

45. Subcontractor- Any individual, firm, partnership, company, corporation or association licensed or otherwise authorized by law to do business in Missouri, to whom CONTRACTOR, with written notification to CITY, has entered into an agreement to perform a part of the Work.

46. Substantial Completion- When Work (or a specified part thereof) has progressed to the point where, in the opinion of DESIGN PROFESSIONAL as evidenced by DESIGN PROFESSIONAL's definitive certificate of Substantial Completion, it is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

47. Supplementary Conditions- The part of the Contract Documents which amends and/or supplements these General Conditions.

48. Supplier- A manufacturer, fabricator, supplier, distributor, materialman or vendor having a direct contract with CONTRACTOR or with any Subcontractor to furnish materials or equipment to be incorporated into the Work by CONTRACTOR or any Subcontractor.

49. Underground Facilities- All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

50. Unit Price Work- Work to be paid for on the basis of unit prices.

51. Work- The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work includes and is the result of performing or furnishing labor, and furnishing and incorporating material and equipment into the construction, and furnishing documents, all as required by the Contract Documents.

52. Work Change Directive- A written directive to CONTRACTOR, issued on or after the Effective Date of the Contract, signed by CITY and recommended by DESIGN PROFESSIONAL, ordering an addition, deletion or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed, or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times, but is evidence that the parties expect that the change directed or

documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

53. Work Day - Any day during which the CONTRACTOR is able to work a period of six (6) hours or more. Days that are not Work Days are days during which the CONTRACTOR is unable to work for a period of six (6) hours by reason of strikes, boycotts, labor disputes, embargoes, unusual delays in transportation or shortage of material, acts of God, acts of the public enemy, acts of superior governmental authority, weather conditions, riots, rebellion, sabotage, or any other circumstances for which CONTRACTOR is not responsible or which is not within its control. Saturdays, Sundays, and holidays on which the CONTRACTOR's forces engage in Work requiring the presence of an inspector, will be considered as Work Days.

54. Written Amendment- A written statement modifying the Contract Documents, signed by CITY and CONTRACTOR on or after the Effective Date of the Contract and normally dealing with the non-engineering or non-technical rather than strictly construction-related aspects of the Contract Documents.

1.02 Terminology

A. Intent of Certain Terms or Adjectives

1. Whenever in the Contract Documents the terms "as ordered," "as directed," "as required," "as allowed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper" or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review or judgment of DESIGN PROFESSIONAL as to the Work, it is intended that such requirement, direction, review or judgment will be solely to evaluate, in general, the completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to DESIGN PROFESSIONAL any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.08 or any other provision of the Contract Documents.

B. Defective

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty or deficient, in that it does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents, or has been damaged prior to CITY 's Representative's recommendation of final payment (unless responsibility for the protection thereof has been assumed by CITY at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

C. Furnish, Install, Perform, Provide

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of CONTRACTOR, “provide” is implied.

D. Unless stated otherwise in the Contract Documents, words and phrases which have a well-known technical or construction industry or trade meanings are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 PRELIMINARY MATTERS

2.01 Delivery of Bonds

A. CONTRACTOR shall deliver to CITY such Bonds as CONTRACTOR may be required to furnish.

2.02 Evidence of Insurance

A. CONTRACTOR shall deliver to CITY certificates of insurance or other evidence of insurance that CITY may request, which CONTRACTOR is required to purchase and maintain in accordance with Article 5 or any other applicable provision in the Contract Documents.

2.03 Copies of Documents

A. CITY shall furnish to CONTRACTOR one (1) copy of the Drawings and Specifications, including addenda.

2.04 Commencement of Contract Times; Notice to Proceed

A. The Contract Times will commence to run on the date indicated in the Notice to Proceed.

2.05 Starting the Work

A. CONTRACTOR shall start to perform the Work on the date when the Contract Times commence to run, but no Work shall be done at the Site prior to the date on which the Contract Times commence to run, unless otherwise indicated in the Notice to Proceed.

2.06 Before Starting Construction

A. CONTRACTOR's Review of Contract Documents: Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. CONTRACTOR shall promptly report in writing to DESIGN PROFESSIONAL any conflict, error, ambiguity or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from DESIGN PROFESSIONAL before proceeding with any Work affected thereby. CONTRACTOR shall not be liable to CITY or DESIGN PROFESSIONAL for failure to report any conflict, error, ambiguity or discrepancy in the Contract Documents, unless CONTRACTOR knew or reasonably should have known thereof.

B. Preliminary Schedules: Within ten (10) days after the Effective Date of the Contract, or on such later date as CITY's Representative shall provide in writing, CONTRACTOR shall submit to CITY's Representative for review:

1. Preliminary Project Schedule: CONTRACTOR shall submit a proposed project schedule for CITY’s acceptance. The proposed project schedule shall include a detailed and comprehensive construction schedule utilizing a critical path method diagram network that (a) shows all major procurement and construction elements and phases of the Project; (b) breaks down each element or phase by trade; (c) shows early and late starts so that all float time will be accurately identified; (d) all other activities necessary for the timely completion of the Project in accordance with the scheduled dates for Substantial and Final Completion; and (e) highlights the project’s critical path. CITY’s acceptance is expressly limited to CITY’s acknowledgement that, based upon CITY’s limited review, the dates of Substantial

Completion and Milestone dates are acceptable. After final acceptance of the preliminary project schedule by the CITY, it shall be considered the project baseline schedule pursuant to Paragraph 2.07(B).

2. Preliminary schedule of Shop Drawings and Sample submittals which will list each required submittal and the times for submitting, reviewing and processing such submittal; and

3. Preliminary 01290.02 Schedule of Values for all of the Work which will include quantities and prices of items which when added together equals the Contract Price and will subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

C. Preconstruction Conference: Before any Work at the Site may be started, a conference attended by CONTRACTOR, DESIGN PROFESSIONAL and others, as appropriate, will be scheduled by CITY's Representative to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.06 B, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, maintaining required records, Claims process, dispute resolution or any other applicable provisions of the Contract Documents.

2.07 Acceptable Schedules

A. Acceptable schedule: The Contractor shall update and submit to the CITY for review the preliminary schedule within seven (7) Calendar Days after the Notice to Proceed.

1. The CITY shall review and make any necessary comments and/or adjustments to the updated preliminary schedule. The Contractor shall incorporate the CITY's comments and resubmit the updated preliminary schedule within seven (7) Calendar Days from receipt of the CITY's comments.

B. Project Baseline Schedule: The accepted updated preliminary schedule shall be considered the project baseline schedule and shall be used by the CONTRACTOR for planning, scheduling, managing, and executing the Work. The project baseline schedule shall not be changed without the written consent of CITY. The project baseline schedule may be further modified by the Supplemental Conditions.

C. CONTRACTOR's schedule of values will be acceptable to CITY's Representative as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 CONTRACT DOCUMENTS : INTENT, AMENDING, REUSE

3.01 Intent

A. The Contract Documents comprise the entire Contract between CITY and CONTRACTOR concerning the Work.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any Work, materials or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be furnished and performed whether or not specifically called for at no additional cost to CITY. Clarifications and interpretations of the Contract Documents shall be issued by DESIGN PROFESSIONAL as provided in Paragraph 9.03.

C. Correlation and intent of documents: The Drawings and Specifications are intended to supplement each other. Any Work shown on the Drawings and not mentioned in the Specifications (or vice versa) shall be as binding and shall be completed the same as if mentioned or shown on both. In the event of conflicts or discrepancies among the Contract Documents, interpretations will be based on the following priorities:

1. Change Orders and Written Amendments
2. Project Baseline Schedule Requirements
3. Approved Shop Drawings
4 Addenda, with those of later date having precedence over those of earlier date
5. The Supplementary Conditions
6. The General Conditions
7. Drawings and Specifications

D. In the case of an inconsistency between Drawings and Specifications, the requirements of the Specifications shall govern. If Drawings are in conflict, larger scale details shall govern over smaller or no-scale Drawings. If Specification sections are in conflict with each other, the conflict shall be resolved by DESIGN PROFESSIONAL in accordance with reasonable interpretation of such documents.

E. The general character of the detailed Work is shown on the Drawings, but minor modifications may be made in the full size or scale details. Where the word “similar” occurs on the Drawings, it shall be used in its general sense and not as meaning identical, and all details shall be worked out in relation to their location and their connection to the other parts of the Work. Where on any Drawings a portion of the Work is drawn out and the remainder is indicated in outline, the parts drawn out shall apply also to all other like portions of the Work. Where ornaments or other details are indicated by starting only, such details shall be continued throughout the courses or parts in which they occur and shall also apply to all other similar parts in the Work, unless otherwise indicated.

3.02 Reference to Standards and Specifications of Technical Societies

A. Reference to standards, specifications, manuals or codes of any technical society, organization or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the latest standard, specification, manual, code or Laws or Regulations in effect at the time of opening of Bids (or on the date of CONTRACTOR’s proposal if there are no Bids), except as may be otherwise specifically stated in the Contract Documents.

1. No provision of any such standard, specification, manual, code or instruction of Supplier shall be effective to change the duties or responsibilities of CITY, CONTRACTOR or DESIGN PROFESSIONAL, or any of their Subcontractors, Consultants, agents, or employees from those set forth in the Contract Documents, nor shall it be effective to assign to CITY or DESIGN PROFESSIONAL or any of their Consultants, agents or employees any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 Reporting and Resolving Discrepancies

A. Reporting Discrepancies: If, during the performance of the Work, CONTRACTOR discovers any conflict, error, ambiguity or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Laws or Regulations applicable to the performance of the Work or of any standard, specification, manual, code or any instruction of any Supplier referred to in Paragraph 6.07, CONTRACTOR shall report it immediately to DESIGN PROFESSIONAL in writing. CONTRACTOR shall not proceed with the Work affected thereby (except in an emergency as authorized by Paragraph 6.17) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04; provided, however, that CONTRACTOR shall not be liable to CITY or DESIGN PROFESSIONAL for failure to report any such conflict, error, ambiguity or discrepancy unless CONTRACTOR knew or reasonably should have known thereof.

B. Resolving Discrepancies. The provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity or discrepancy between the provisions of the Contract Documents and:

1. the provisions of any standard, specification, manual, code or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

2. the provisions of any Laws or Regulations applicable to the performance of the Work.

3.04 Amending and Supplementing Contract Documents

A. The Contract Documents may be amended to provide for additions, deletions and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways:

1. a Written Amendment or

2. a Change Order (pursuant to Article 10), whether pursuant to a Work Change Directive or otherwise.

B. The requirements of the Contract Documents may be supplemented and minor variations and deviations in the Work may be authorized, in one or more of the following ways

1. DESIGN PROFESSIONAL's approval of a Shop Drawing or Sample (pursuant to Paragraph 6.18), or

2. DESIGN PROFESSIONAL's written interpretation or clarification (pursuant to Paragraph 9.03).

3.05 Reuse of Documents

A. CONTRACTOR and any Subcontractor or Supplier or other person or organization performing or furnishing any of the Work under this Contract:

1. shall not have or acquire any title to or ownership rights in any of the Drawings, Specifications or other documents (or copies of any thereof) prepared by or bearing the seal of DESIGN PROFESSIONAL or Consultant, and

2. shall not reuse any of such Drawings, Specifications, other documents or copies thereof on extensions of the Project or any other project without written consent of CITY, and of DESIGN PROFESSIONAL or Consultant, as applicable, and specific written verification or adaptation by DESIGN PROFESSIONAL or Consultant.

This prohibition will survive final payment, completion, and acceptance of the Work, or termination or completion of the Contract. Nothing herein shall preclude CONTRACTOR from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS

4.01 Availability of Lands

A. CITY shall furnish the Site. CITY shall identify any encumbrances or restrictions not of general application but specifically related to use of lands so furnished with which CONTRACTOR will have to comply in performing the Work. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by CITY, unless otherwise provided in the Contract Documents. If CONTRACTOR and CITY are unable to agree on entitlement to or the amount or extent of any adjustments in the Contract Price or the Contract Times or both as a result of any delay in CITY's furnishing these lands, rights-of-way or easements, CONTRACTOR may make a Claim as provided in Article 16. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 Subsurface and Physical Conditions

A. Reports and Drawings: Reference is made to the Supplementary Conditions for identification of:

1. Subsurface Conditions: Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that have been utilized by DESIGN PROFESSIONAL in preparing the Contract Documents; and

2. Physical Conditions: Those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that have been utilized by DESIGN PROFESSIONAL in preparing the Contract Documents.

B. Limited Reliance by CONTRACTOR on Technical Data Authorized: CONTRACTOR may rely upon the general accuracy of the technical data contained in reports and drawings of subsurface or physical conditions, but such reports and drawings are not Contract Documents. The technical data is identified in the Supplementary Conditions. Except for reliance on such technical data, CONTRACTOR may not rely upon or make any Claim against CITY, DESIGN PROFESSIONAL or any Consultant with respect to:

1. the completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings, or

3. any CONTRACTOR interpretation of or conclusion drawn from any technical data or any such other data, interpretations, opinions or information.

4.03 Differing Subsurface or Physical Conditions

A. Notice of Differing Subsurface or Physical Conditions. If CONTRACTOR believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any technical data on which CONTRACTOR is entitled to rely as provided in Paragraphs 4.02 A and 4.02 B is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents; then CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.17), notify CITY and DESIGN PROFESSIONAL in writing about such condition(s). CONTRACTOR shall not further disturb such conditions or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. DESIGN PROFESSIONAL's Review: After receipt of notice as required by Paragraph 4.03 A, DESIGN PROFESSIONAL will promptly review the pertinent conditions, determine the necessity for CITY to obtain additional exploration or tests with respect thereto and notify CITY in writing (with a copy to CONTRACTOR) of DESIGN PROFESSIONAL's findings and conclusions.

C. Possible Contract Documents Change: If CITY concludes that a change in the Contract Documents is required as a result of a condition that meets one or more of the categories in Paragraph 4.03 A, a Work Change Directive or a Change Order will be issued as provided in Article 10 to reflect and document the consequences of such change.

D. Possible Price or Times Adjustments: An equitable adjustment in the Contract Price or in the Contract Times, or both, will be allowed to the extent that the existence of a subsurface or physical condition causes an increase or decrease in CONTRACTOR's cost of, or time required for, performance of the Work; subject, however, to the following:

1. the condition must meet any one or more of the categories described in Paragraphs 4.03 A.1 through 4.03 A.4, inclusive;

2. a change in the Contract Documents pursuant to Paragraph 4.03 C will not be an automatic authorization of, nor a condition precedent to, entitlement to any such adjustments;

3. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.06 and 11.04; and

4. CONTRACTOR shall not be entitled to any adjustment in the Contract Price or Contract Times if;

a. CONTRACTOR knew, or by the exercise of ordinary care could have known, of such conditions at the time CONTRACTOR made a final commitment to CITY with respect to Contract Price and Contract Times by the submission of a Bid; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for CONTRACTOR prior to CONTRACTOR's making such final commitment; or

c. CONTRACTOR failed to give the written notice as required by Paragraph 4.03 A.

E. If CITY and CONTRACTOR are unable to agree on entitlement to, or magnitude of, an equitable adjustment in the Contract Price pursuant to Article 11 and/or Contract Times pursuant to Article 12, a Claim may be made therefore as provided in Article 16. However, CITY, DESIGN PROFESSIONAL and Consultants shall not be liable to CONTRACTOR for any costs, losses or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all other dispute resolution costs) sustained by CONTRACTOR on or in connection with any other project or anticipated project.

4.04. Physical Conditions – Underground Facilities

A. Shown or Indicated: The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to CITY or DESIGN PROFESSIONAL by the owners of such Underground Facilities or by others.

1**.** CITY and DESIGN PROFESSIONAL shall not be responsible for the accuracy or completeness of any such information or data; and

2. The cost of all of the following will be included in the Contract Price and CONTRACTOR shall have full responsibility for:

a. reviewing and checking all such information and data,

b. locating all Underground Facilities shown or indicated in the Contract Documents,

c. coordination of the Work with the owners of such Underground Facilities during construction, and

d. the safety and protection of all such Underground Facilities as provided in Paragraph 6.14 and repairing any damage thereto resulting from the Work.

B. Not Shown or Indicated: If an Underground Facility is uncovered or revealed at or contiguous to the Site, and was not shown or indicated in the Contract Documents, or was

shown or indicated incorrectly in the Contract Documents, CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.17), identify the owner of such Underground Facility and give written notice to that owner and to CITY and DESIGN PROFESSIONAL.

C. DESIGN PROFESSIONAL's Review: After receipt of notice as required by Paragraph 4.04 B, DESIGN PROFESSIONAL will promptly review the consequences of the existence of the Underground Facility and notify CITY in writing (with a copy to CONTRACTOR) of DESIGN PROFESSIONAL's findings and conclusions.

D. Possible Contract Documents Change: If CITY concludes that a change in the Contract Documents is required as a result of the existence of an Underground Facility that either was not shown, or was shown incorrectly, in the Contract Documents, a Work Change Directive or Change Order will be issued as provided in Article 10 to reflect and document the consequences of such change.

E. Possible Price or Times Adjustments: An equitable adjustment in the Contract Price or in the Contract Times, or both, will be allowed to the extent that the existence of the Underground Facility causes an increase or decrease in CONTRACTOR's cost of, or time required for, performance of the Work; subject, however, to the following:

1. a change in the Contract documents pursuant to Paragraph 4.04 D will not be an automatic authorization of, nor a condition precedent to, entitlement to any such adjustments;

2. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.06 and 11.04; and

3. CONTRACTOR shall not be entitled to any adjustment in the Contract Price or Contract Times if;

a. CONTRACTOR knew, or by the exercise of ordinary care could have known, of the existence of the Underground Facility at the time CONTRACTOR made a final commitment to CITY with respect to Contract Price and Contract Times by the submission of a Bid; or

b. the existence of the Underground Facility could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for CONTRACTOR prior to CONTRACTOR's making such final commitment; or

c. CONTRACTOR failed to give the written notice as required by Paragraph 4.04 B.

F. If CITY and CONTRACTOR are unable to agree on entitlement to, or magnitude of, an equitable adjustment in the Contract Price pursuant to Article 11 and/or Contract Times pursuant Article 12, a Claim may be made therefore as provided in Article 16. However, CITY, DESIGN PROFESSIONAL and Consultants shall not be liable to CONTRACTOR for any costs, losses or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all other dispute resolution costs) sustained by CONTRACTOR on or in connection with any other project or anticipated project.

4.05 Reference Points

A. CITY shall provide engineering surveys to establish reference points for construction that in DESIGN PROFESSIONAL's judgment are necessary to enable CONTRACTOR to proceed with the Work. CONTRACTOR shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of CITY. CONTRACTOR shall report to DESIGN PROFESSIONAL whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be

responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 Asbestos, Lead-Based Paint, PCBs, Petroleum, Hazardous Waste or Radioactive Material

A. Reports and Drawings: Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the DESIGN PROFESSIONAL in the preparation of the Contract Documents.

B. Limited Reliance by CONTRACTOR on Technical Data Authorized: CONTRACTOR may rely upon the general accuracy of the technical data contained in reports and drawings relating to a Hazardous Environmental Condition at the Site, but such reports and drawings are not Contract Documents. Such technical data is identified in the Supplementary Conditions. Except for such reliance on such technical data, CONTRACTOR may not rely upon or make any Claim against CITY, DESIGN PROFESSIONAL or any Consultant with respect to:

1. the completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto; or

2**.** other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any CONTRACTOR interpretation of or conclusion drawn from any technical data or any such other data, interpretations, opinions or information.

C. CONTRACTOR shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. CONTRACTOR shall be responsible for all Hazardous Environmental Conditions created with any materials brought to the Site by CONTRACTOR, Subcontractors, Suppliers, or anyone else for whom CONTRACTOR is responsible. CONTRACTOR shall not be entitled to an extension of the Contract Times or an increase in the Contract Price if CONTRACTOR, Subcontractor, Supplier or anyone for whom CONTRACTOR is responsible created any Hazardous Environmental Condition at the Site or in connection with the Work.

D. If CONTRACTOR encounters a Hazardous Environmental Condition at the Site or if CONTRACTOR or anyone for whom CONTRACTOR is responsible creates a Hazardous Environmental Condition at the Site, CONTRACTOR shall immediately:

1. secure or otherwise isolate such condition;

2. stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6. 15); and

3. notify CITY and DESIGN PROFESSIONAL (and promptly thereafter confirm such notice in writing). CITY shall promptly consult with DESIGN PROFESSIONAL concerning the necessity for CITY to retain a qualified expert to evaluate such condition or take corrective action, if any.

E. CONTRACTOR shall neither resume Work nor be required to resume Work in connection with such condition or in any affected area until after CITY has obtained any required permits related thereto and delivered to CONTRACTOR written notice:

1. specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or

2. specifying any special conditions under which such Work may be resumed safely. If CITY and CONTRACTOR cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price pursuant to Article 11and/or Contract Times to

pursuant to Article 12 as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by CONTRACTOR, a Claim may be made therefore as provided in Article 16.

F. If after receipt of written notice as required in Paragraph 4.06 E, CONTRACTOR does not agree to resume Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under special conditions specified in the notice, then CITY may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If CITY and CONTRACTOR cannot agree as to entitlement to or magnitude of an equitable adjustment in Contract Price pursuant to Article 11and/or Contract Times pursuant to Article 12 as a result of deleting such portion of the Work, then a Claim may be made therefore as provided in Article 16. CITY may have such deleted portion of the Work performed by CITY's own forces or others in accordance with Article 7.

G. The provisions of Paragraphs 4.02, 4.03, and 4.04 are not intended to apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

H. All materials used, whether new or salvaged, shall be asbestos-free materials. CONTRACTOR shall immediately call to the attention of the CITY's Representative any specified material or product which the CONTRACTOR knows or suspects to contain asbestos, whether new or salvaged.

ARTICLE 5 BONDS AND INSURANCE

5.01 Performance, Payment and Other Bonds

A. CONTRACTOR shall furnish Performance and Maintenance and Payment Bonds, each in an amount at least equal to the Contract Price, as set out in the Contract Documents, as security for the faithful performance and payment of all CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one (1) year after the date when final payment of the Contract becomes due, except as provided otherwise by Laws or Regulations or by the Contract Documents. CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary Conditions.

B. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations. A certified copy of the agent's authority to act must accompany all Bonds signed by an agent.

C. If the surety on any Bond furnished by CONTRACTOR is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirement of Paragraph 5.01 B, CONTRACTOR shall within twenty (20) days thereafter substitute another Bond and surety, both of which must be acceptable to CITY.

5.02 Licensed Sureties and Insurers

A. All Bonds and insurance required by the Contract Documents to be purchased and maintained by CITY or CONTRACTOR shall be obtained from surety or insurance companies that are duly licensed in the State of Missouri and in the jurisdiction in which the Project is located, if not in Missouri, to issue Bonds or insurance policies for the limits and coverages so required. All surety and insurance companies shall hold an A.M. Best rating of A-, V, or better.

5.03 Certificates of Insurance

A. CONTRACTOR shall deliver to CITY and DESIGN PROFESSIONAL, prior to the start of any Work at the Project Site, properly completed certificates of insurance or other evidence that the required insurance is in full force and effect, in a form acceptable to CITY. The receipt or acceptance of a certificate of insurance that does not incorporate the required terms and coverage shall not constitute a waiver by the City of the insurance requirements contained in the Contract Documents.

B. All policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained by CONTRACTOR in accordance with Paragraphs 5.04 and 5.06 will contain waiver provisions in accordance with Paragraph 5.07 A. The certificates of insurance will contain a provision stating that should any of the policies described in the certificate be cancelled before the expiration date thereof, notice will be delivered in accordance with the policy provisions.

C. If the coverage afforded is cancelled or changed or its renewal is refused, CONTRACTOR shall give at least thirty (30) days prior written notice to CITY and to each other additional insured to whom a certificate of insurance has been issued.

5.04 CONTRACTOR's Liability Insurance

A. CONTRACTOR shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and furnished, and will provide protection from claims set forth below which may arise out of or result from CONTRACTOR's performance and furnishing of the Work and CONTRACTOR's other obligations under the Contract Documents, whether it is to be performed or furnished by CONTRACTOR, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform or furnish any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of CONTRACTOR's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR's employees;

4. claims for damages insured by customary personal injury liability coverage;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefore; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance so required by Paragraph 5.04 A, to be purchased and maintained shall:

1. with respect to insurance required by Paragraphs 5.04 A.3 through 5.04 A.5 inclusive, include as additional insureds (subject to any customary exclusion for professional liability) CITY, DESIGN PROFESSIONAL, Consultants and any other individuals or entities identified in the Supplementary Conditions to be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in Paragraph 5.04 C or required by Laws or Regulations, whichever is greater;

3. include completed operations insurance;

4. include contractual liability insurance covering CONTRACTOR's indemnity obligations;

5. remain in effect at least until final payment and at all times thereafter when CONTRACTOR may be correcting, removing or replacing defective Work in accordance with Paragraphs 13.06 and 13.07;

6. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two (2) years after final payment (and CONTRACTOR shall furnish CITY and each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued evidence satisfactory to CITY and any such additional insured of continuation of such insurance);

7. contain a cross-liability or severability of interest clause or endorsement. Insurance covering the specified additional insureds shall be primary insurance, and all other insurance carried by the additional insureds shall be excess insurance;

8. with respect to commercial automobile liability, commercial general liability, and umbrella liability insurance, CONTRACTOR shall require its insurance carrier(s) to waive all rights of subrogation against CITY, and CITY's officers, directors, partners, employees and agents; and

9. contain a provision or endorsement that the costs of providing the insureds a defense and appeal, including attorneys' fees, as insureds, shall be supplementary and shall not be included as part of the policy limits but shall remain the insurer's responsibility.

C. Specific policies of insurance required by this Paragraph 5.04 shall include:

1. Workers' Compensation and Employers' Liability Insurance. This insurance shall protect CONTRACTOR against all claims under applicable state workers''' compensation laws, including coverage as necessary for the benefits provided under the United States Longshoremen's and Harbor Workers' Act and the Jones Act. CONTRACTOR shall also be protected against claims for injury, disease, or death of employees which, for any reason, may not fall within the provisions of workers' compensation laws. This policy shall include an "all states" or "other states" endorsement. The liability limits shall be not less than:

Workers' Compensation: Statutory

Employers' liability: $1,000,000 each occurrence

2. Commercial Automobile Liability Insurance. This insurance shall be occurrence type written in comprehensive form and shall protect CONTRACTOR, and CITY, DESIGN PROFESSIONAL and Consultants against all claims for injuries to members of the public and damage to property of others arising from the use of motor vehicles, either on or off the Project Site, whether they are owned, non-owned, or hired.

   The liability limits shall be not less than: $2,000,000

3. Commercial General Liability Insurance. This insurance shall be occurrence type written in comprehensive form acceptable to CITY. This insurance shall protect CONTRACTOR, and CITY, DESIGN PROFESSIONAL and Consultants as additional insureds, against claims arising from injuries, sickness, disease, or death of any person or damage to property arising out of performance of the Work. The policy shall also include coverage for personal injury liability; contractual liability; completed operations and products liability; and for blasting, explosion, and collapse of buildings; and damage to underground property. The liability limits for bodily injury and property damage shall be not less than:

$2,000,000 combined single limit for each occurrence

$2,000,000 general aggregate.

4. The insurer's costs of providing the insureds a defense and appeal as additional insureds, including attorney's fees, shall be supplementary and shall not be included as part of the policy limits but shall remain the insurer's separate responsibility.

5.05 CITY's Liability Insurance

A. In addition to the insurance required to be provided by CONTRACTOR under Paragraph 5.04, CITY, at CITY's option, may purchase and maintain at CITY's expense liability insurance

that will protect CITY against claims which may arise from operations under the Contract Documents.

5.06 Property Insurance

A. Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall purchase and maintain property insurance on the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws or Regulations). This insurance shall:

1. include the interests of CITY, CONTRACTOR, Subcontractors, and any other persons or entities identified in the Supplementary Conditions, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, tornado, collapse, debris removal, demolition occasioned by enforcement of Laws or Regulations, water damage, damage caused by frost and freezing, and acts of God;

3. be maintained in effect until final payment is made unless otherwise agreed to in writing by CITY with thirty (30) days written notice to each other additional insured to whom a certificate of insurance has been issued.

B. CITY shall not be responsible for purchasing and maintaining any property insurance to protect the interests of CONTRACTOR, Subcontractors or others involved in the Work to the extent of any deductible amounts. The risk of loss within the deductible amounts will be borne by CONTRACTOR, Subcontractor or others suffering any such loss and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

5.07 Waiver of Rights

A. CITY and CONTRACTOR intend that all policies purchased in accordance with Paragraphs 5.04 and 5.06 will protect CITY, CONTRACTOR, DESIGN PROFESSIONAL Consultants, Subcontractors, and all other persons or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds in such policies and will provide primary coverage for all losses and damages caused by the perils covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. CITY and CONTRACTOR waive all rights against each other and their respective officers, directors, partners, employees and agents for all losses and damages caused by, arising out of or resulting from any of the perils covered by such policies and any other property insurance applicable to the Work, but only to the extent of insurance coverage; and, in addition, waive all such rights against DESIGN PROFESSIONAL, Consultants, Subcontractors, and all other persons or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of any and each of them) under such policies for losses and damages so caused and covered by insurance. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by CITY as trustee or otherwise payable under any policy so issued. None of the above waivers shall apply if specifically in conflict with Laws and Regulations.

5.08 Receipt and Application of Insurance Proceeds

A. Any insured loss under the property insurance will be adjusted with CITY and made payable to CITY as fiduciary for the insureds, as their interests may appear, subject to the requirements of any indentures of indebtedness entered into by CITY.

B. CITY as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object to CITY's exercise of this power in writing within fifteen (15) days after the occurrence of loss. If such objection is made, CITY as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, CITY as fiduciary shall adjust and settle the loss with the insurers.

5.09 Partial Utilization – Property Insurance

A. If CITY finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, such use or occupancy may be accomplished in accordance with Paragraph 14.05; provided that no such use or occupancy shall commence before the insurers providing the property insurance have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 CONTRACTOR'S RESPONSIBILITIES

6.01 Indemnification

A. For purposes of this Paragraph 6.01 only, the following terms shall have the meanings listed:

1. Claims means all claims, damages, liability, losses, costs and expenses, including court costs and reasonable attorneys'" fees, including attorney's fees incurred by the City in the enforcement of this indemnity obligation.

2. CONTRACTOR'S Agents means CONTRACTOR's officers, employees, sub-consultants, subcontractors, successors, assigns, invitees, and other agents.

3. CITY means CITY, its Program Manager/Construction Advisor and any of their agents, officials, officers, employees and program managers or construction advisors.

B. CONTRACTOR's obligations under this Paragraph with respect to indemnification for acts or omissions, including negligence, of CITY, shall be limited to the coverage and limits of insurance that CONTRACTOR is required to procure and maintain under this Contract. CONTRACTOR affirms that it has had the opportunity to recover the costs of the liability insurance required in this Contract in its contract price.

C. CONTRACTOR shall defend, indemnify and hold harmless CITY from and against all Claims arising out of or resulting from all acts or omissions in connection with this Contract caused in whole or in part by CONTRACTOR or CONTRACTOR's Agents, regardless of whether or not caused in part by any act or omission, including negligence, of OWNER.

D. In any and all Claims against CITY, DESIGN PROFESSIONAL, CONSULTANT, or any of their respective agents, officers, directors or employees by any employee (or the survivor or personal representative of such employee) of CONTRACTOR, any Subcontractor, any Supplier, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.01 C shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for CONTRACTOR or any such Subcontractor, Supplier or other person or organization under workers' compensation acts, disability benefit acts or other employee benefit acts.

E. The indemnification obligations of CONTRACTOR under Paragraph 6.01 C shall not extend to liability arising out of, resulting from, or caused by the professional negligence, errors or omissions of DESIGN PROFESSIONAL, CONSULTANT, or any of their respective agents, officers, directors or employees.

6.02 Supervision and Superintendence

A. CONTRACTOR shall supervise, inspect and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of others in the design or specification of a specific means, method, technique, sequence or procedure of construction which is shown or indicated in and expressly required by the Contract Documents. CONTRACTOR shall be responsible to see that the completed Work complies accurately with the Contract Documents.

B. At all times during the progress of the Work, CONTRACTOR shall assign a competent resident superintendent of the Work, who shall not be replaced without written request to and approval by CITY except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the Site and shall have authority to act on behalf of CONTRACTOR. All communications given to or received from the superintendent shall be binding on CONTRACTOR.

C. If it is determined to be in the best interest of the Work, CONTRACTOR shall replace the project manager, resident superintendent or any other employee of the CONTRACTOR, Subcontractors, Suppliers or other persons or organizations performing or furnishing any of the Work on the project upon written request by the CITY.

6.03 Services, Working Hours, Labor, Materials and Equipment

A. CONTRACTOR shall provide competent, suitably qualified personnel to survey, lay out and construct or perform the Work as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the Site. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all Work at the Site shall be performed during regular working hours. CONTRACTOR shall not permit overtime work or the performance of Work on Saturday, Sunday or any legal holiday without CITY's written consent given after prior written notice to DESIGN PROFESSIONAL.

B. Unless otherwise specified in Division 1, General Requirements, CONTRACTOR shall furnish and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and completion of the Work.

C. All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall expressly run to the benefit of CITY. If required by DESIGN PROFESSIONAL, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment. All materials and equipment shall be stored, applied, installed, connected, erected, used, cleaned and conditioned in accordance with instructions of the applicable Supplier, except as otherwise provided in the Contract Documents.

D. It is the policy of the CITY that any manufactured goods or commodities used or supplied in the performance of this Contract and any subcontract hereto shall be manufactured or produced in the United States whenever possible.

6.04 Progress Schedule

A. CONTRACTOR shall adhere to the progress schedule established in accordance with Article 2 as it may be adjusted from time to time as provided below:

1. CONTRACTOR shall provide, at least once every thirty (30) calendar days, updated information on the project schedule, including thirty (30) day look ahead schedules, projected variances per event category and per Subcontractor, identification of all variances and calculation of the number of Days difference between the as-built critical path and the project schedule critical path

2. CONTRACTOR shall, with each application for payment, provide completed monthly updated status report for the previous month on the project schedule and updated information indicating as-built and as-planned conditions. The updated information on the project schedule shall not modify any Milestone dates in the project schedule that CITY has previously approved. The updated information required is a condition precedent to payment pursuant to paragraph 14.02 and shall include at a minimum:

a. a concise statement of the outlook for meeting project schedule dates and the reasons for any change in outlook from the previous report;

b. a review of any significant technical problems encountered during the month;

c. an explanation of any corrective action taken or proposed; and

d. a summary of any Claims anticipated by CONTRACTOR with respect to the Work, including the anticipated costs and schedule impacts of any such Claims.

6.05 Recovery Schedules

A. If the CONTRACTOR should:

1. fail, refuse or neglect to supply a sufficient number of workers or to deliver the materials or equipment with such promptness as to prevent the delay in the progress of the Work;

2. fail in any respect to commence and diligently prosecute the Work in accordance with the approved baseline project schedule in order to achieve substantial completion;

3. fail to commence, prosecute, finish, deliver or install the different portions of the Work on time as specified in the approved baseline project schedule; or

4. fail in the performance of any of the material covenants of the Contract Documents;

CITY shall have the right to direct the CONTRACTOR, upon seven (7) calendar days notice, to prepare a written recovery plan, for CITY's approval, to accelerate the Work in order to conform to the approved baseline project schedule, including, without limitation, providing additional labor or expediting delivery of materials, performing overtime or re-sequencing the Work without adjustments to the Contract value. Upon CITY's approval of the recovery plan, CONTRACTOR shall accelerate the Work in accordance with the plan.

B. Proposed recovery schedules shall be submitted to the CITY as a separate project plan for review and approval by CITY prior to incorporation into the approved baseline schedule. The recovery schedule shall be submitted in a format compatible with the baseline schedule format. Each proposed revision shall be submitted as a separate schedule, with the following minimum requirements:

1. A critical path method diagram showing revised and affected activities or Milestones.

2. An activity report for all revised and affected activities or Milestones.

C. Upon acceptance of the recovery schedule by CITY, data shall be added or revised for all new or revised activities and incorporated into the approved baseline project schedule.

6.06 Substitutes and "Or-Equal" Items

A. Materials or equipment: Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance and quality required. Unless the specification or description contains, or is followed by, words reading that no like, equivalent or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to CITY for review by CITY's Representative under the following circumstances:

1. "Or-Equal": If, prior to receipt of Bids, Bidder proposes an item of material or equipment as functionally equal to that named and sufficiently similar so that no change in related Work will be required, CITY's Representative may request DESIGN PROFESSIONAL to consider it as an "or-equal" item. DESIGN PROFESSIONAL will review and recommend the acceptance, or rejection, of the proposed item to the CITY's Representative. For the purposes of this Paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment DESIGN PROFESSIONAL determines that:

(1) it is at least equal in quality, durability, appearance, strength, and design characteristics; and

(2) it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole; and

b. Bidder certifies that:

(1) there is no increase in cost to the CITY; and

(2) it will conform substantially, even with deviations, to the detailed requirements of the item named in the Contract Documents.

If the CITY's Representative approves the proposed item, it may be accepted by CITY.

2. Substitute Items: If CONTRACTOR proposes an item of material or equipment as a substitute item, then CONTRACTOR shall submit sufficient information as provided below to allow CITY's Representative to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefore. The procedure for review by the CITY's Representative will include the following as supplemented in the General Requirements and as CITY's Representative may determine is appropriate under the circumstances:

a. Requests for review of proposed substitute items of material or equipment will not be accepted by CITY's Representative from anyone other than CONTRACTOR.

b. If CONTRACTOR wishes to furnish or use a substitute item of material or equipment, CONTRACTOR shall first make written application to CITY's Representative for acceptance thereof.

c. In the application, CONTRACTOR shall certify that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified and be suited to the same use as that specified. The application will state the extent, if any, to which the evaluation and acceptance of the proposed substitute will impact CONTRACTOR's achievement of Substantial Completion, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with CITY for work on the Project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty.

d. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which will be considered by CITY's Representative in evaluating the proposed substitute. CITY's Representative may require CONTRACTOR to furnish additional data about the proposed substitute.

If the CITY's Representative approves the proposed item, CITY may accept it.

B. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence or procedure of construction is shown or indicated in and expressly required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, technique, sequence or procedure of construction acceptable to DESIGN PROFESSIONAL. CONTRACTOR shall notify CITY and submit sufficient information to allow DESIGN PROFESSIONAL, in DESIGN PROFESSIONAL's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents.

C. Expenses: Bidder shall provide all data in support of any "or equal" at Bidder's expense, and CONTRACTOR shall provide all data in support of any proposed substitute at CONTRACTOR's expense.

D. Evaluation: DESIGN PROFESSIONAL and CITY's Representative will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.06 A, and 6.06 B. CITY will be the sole judge of acceptability. No "or-equal" or substitute will be ordered, installed or utilized without CITY's prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. CITY may require CONTRACTOR to furnish at CONTRACTOR's expense, a special performance guarantee or other surety with respect to any "or-equal' substitute. DESIGN PROFESSIONAL will record time required by DESIGN PROFESSIONAL and Consultants in evaluating substitutes proposed or submitted by CONTRACTOR pursuant to Paragraphs 6.06 A and 6.06 B and in making changes in the Contract Documents (or in the provisions of any other direct contract with CITY for work on the Project) occasioned thereby. Whether or not CITY accepts a substitute so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse CITY for the reasonable charges of DESIGN PROFESSIONAL and Consultants for evaluating each such proposed substitute.

6.07 Concerning Subcontractors, Suppliers and Others

A. CONTRACTOR shall not employ or retain any Subcontractor, Supplier or other person or organization (including those acceptable to CITY as indicated in Paragraph 6.07 B), whether initially or as a substitute, against whom CITY has a reasonable objection, including but not limited to debarment by City or another governmental entity or decertification of the Subcontractor from the City's Minority and Women's Business Enterprise Program as a result of the Subcontractor's failure to comply with any of the requirements of the provisions of Chapter 3 of the City's Code as determined by the Director of the Civil Rights and Equal Opportunity Department. Contractor shall insert this provision in any subcontractor agreement associated with this Contract. CONTRACTOR shall not be required to employ any Subcontractor, Supplier or other person or organization to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection. CONTRACTOR shall submit required information for all Subcontractors on Form 01290.09 - Subcontractor and Major Material Suppliers List, provided in these Contract Documents, prior to Subcontractor beginning Work at the Site.

B. The Supplementary Conditions require the identity of certain Subcontractors, Suppliers or other persons or organizations (including those who are to furnish the principal items of materials or equipment) to be submitted to CITY on or before the date specified in the Supplementary Conditions, for acceptance by CITY. If CONTRACTOR has submitted a list

thereof in accordance with the Supplementary Conditions, CITY may accept (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Contract Documents) any such Subcontractor, Supplier or other person or organization so identified, or may reject same on the basis of reasonable objection after due investigation, in which case CONTRACTOR shall submit an acceptable replacement for the rejected Subcontractor, Supplier or other person or organization. The Contract Price will be adjusted by the difference in the cost occasioned by such substitution, and an appropriate Change Order will be issued or Written Amendment signed. No acceptance by CITY of any such Subcontractor, Supplier or other person or organization shall constitute a waiver of any right of CITY or DESIGN PROFESSIONAL to reject defective Work.

C. CONTRACTOR shall be fully responsible to CITY for all acts and omissions of the Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions. Nothing in the Contract Documents shall create for the benefit of any such Subcontractor, Supplier or other person or organization any contractual relationship between CITY or DESIGN PROFESSIONAL and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of CITY or DESIGN PROFESSIONAL to pay or to see to the payment of any moneys due any such Subcontractor, Supplier or other person or organization except as may otherwise be required by Laws or Regulations.

D. CONTRACTOR shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR.

E. CONTRACTOR shall contractually require all Subcontractors, Suppliers and such other persons and organizations performing or furnishing any of the Work to communicate with CITY and DESIGN PROFESSIONAL through CONTRACTOR.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for CONTRACTOR by a Subcontractor or Supplier shall be pursuant to an appropriate written agreement between CONTRACTOR and the Subcontractor or Supplier that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of CITY. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in Paragraph 5.06, the agreement between the CONTRACTOR and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against CITY, CONTRACTOR, DESIGN PROFESSIONAL, Consultants and all other additional insureds for all losses and damages caused by, arising out of or resulting from any perils, to the extent covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, CONTRACTOR will obtain the same.

H. Except as otherwise provided in this subsection H and in accordance with the provisions of subsection C hereof, the agreement between CONTRACTOR and the Subcontractor or Supplier referred to in subsection G, shall provide that the CONTRACTOR and the Subcontractor or Supplier agree not to request CITY or CITY's Representative to intervene in or facilitate the resolution of claims or contract disputes arising out of or related to the agreement between CONTRACTOR and the Subcontractor or Supplier. Furthermore, the Contracts between CONTRACTOR and Subcontractors or Suppliers shall provide that all unresolved claims and disputes between CONTRACTOR and the Subcontractor or Supplier that remain unresolved after thirty (30) calendar days from the notice of claim, shall be subject to mediation as a condition precedent to the institution of legal proceedings by either party. Any such mediation shall be conducted in accordance with the CITY's Code Section 3-467.

I. CONTRACTOR shall not insert any provision in any subcontractor agreement associated with this Contract that explicitly states or implies that the subcontractor shall only be paid for work performed if or when the general CONTRACTOR is paid by the CITY . Contractor's compliance with this provision is a material term of this Contract.

J. CONTRACTORS shall not deny any Subcontractor subcontracting opportunities solely because the Subcontractor is not a signatory to collective bargaining agreements with organized labor.

6.08 Patent Fees and Royalties

A. CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation into the Work of any invention, design, process, product or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product or device is specified in the Contract Documents for use in the performance of the Work, and if to the actual knowledge of CITY or DESIGN PROFESSIONAL its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by CITY in the Contract Documents. To the fullest extent permitted by Laws or Regulations, CONTRACTOR shall defend, indemnify and hold harmless CITY, DESIGN PROFESSIONAL, Consultants and the officers, directors, employees, agents and other consultants of each and any of them from and against all claims, costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or resulting from any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation into the Work of any invention, design, process, product or device not specified in the Contract Documents.

6.09 Permits

A. Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses. CITY shall assist CONTRACTOR, when necessary, in obtaining such permits and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work, which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Contract. CONTRACTOR shall pay all charges of utility owners for connections to the Work.

B. CONTRACTOR, at its own expense, shall comply with all Federal, State and local laws and regulations, including, but not limited to the Missouri Clean Water Law (Chapter 644 RSMo) together with any accompanying regulation(s) contained in the Missouri Code of State Regulations (CSR Title 10), as well as any implementing permits, together with any CITY Provisions during the life of this Contract including but not limited to:

1. Approvals and permits as required for construction or land disturbance activities.

2. Compliance with the State of Missouri – Department of Natural Resources ("MDNR") Missouri State Operating Permit ("Land Disturbance Permit"), MO-R100006 for all construction or land disturbance activity.

3. Development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).

(a) Contractor shall not commence land disturbance activity until the initial SWPPP has been finalized.

(b) Preparation and submittal of all applications, documentation and exhibits required to obtain MDNR approvals for uninterrupted Work at the Site.

(c) Amending/Updating SWPPP.

(d) Site Inspections and submittal of Inspection Reports

(e) Proper Operation and Maintenance to achieve compliance with the terms of the Permit.

(f) Maintenance of required records in accordance with MDNR requirements and requirements included in Article 6 of these Contract Documents.

4. In addition to requirements of Article 6, Contractor shall also provide record access to Missouri Department of Natural Resources (MDNR).

5. Failure to control erosion and water pollution is a permit violation. CONTRACTOR shall have 24 hours after receiving notice of the violation to correct the problem. If the CONTRACTOR fails to correct the problem after the time prescribed, the City will hire a remediation expert to fix the problem. In such an event, the CONTRACTOR shall be liable to the City for the remediation costs plus a 10% mark-up of the total contract price. If the CONTRACTOR receives three (3) notices of violation of the erosion control plan and the City's MS4 permit, the Director may issue a stop work order and delay any payment until control measures are properly functioning and stream damage has been mitigated. In such an event, any delay to the project schedule will result in liquidated damages assessed against the CONTRACTOR.

6.10 Compliance with Laws and Regulations

A. CONTRACTOR shall comply with all federal, state and local laws, ordinances and regulations applicable to the work and this Contract. CONTRACTOR shall give all notices and comply with all Laws or Regulations applicable to furnishing and performing the Work. Except where otherwise expressly required by applicable Laws or Regulations, neither CITY nor DESIGN PROFESSIONAL shall be responsible for monitoring CONTRACTOR's compliance with any Laws or Regulations. The Laws or Regulations included in this Paragraph shall include, but not be limited to, those set forth in the Supplementary Conditions.

B. **Failure to Comply**. If CONTRACTOR performs any Work in violation of applicable Laws or Regulations, CONTRACTOR shall bear all claims, costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) caused by, arising out of or resulting therefrom; however, it shall not be CONTRACTOR's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws or Regulations, but this shall not relieve CONTRACTOR of CONTRACTOR's obligations under Paragraph 3.03.

C. **Conflicts of Interest**. The provisions of City's Code Sections 2-2001 and 3-301, prohibiting City officers and employees from having a financial or personal interest in any contract with City, and Code Sections 3-307, and 3-309, imposing sanctions for violations, shall apply to this Contract. CONTRACTOR certifies that no officer or employee of City has, or will have, a direct or indirect financial or personal interest in this Contract, and that no officer or employee of City, or member of such officer's or employee's immediate family, either has negotiated, or has or will have an arrangement concerning employment to perform services on behalf of CONTRACTOR on this Contract.

D. **Licenses and Permits**. CONTRACTOR, at its own expense, shall secure or cause to be secured all licenses and permits from public or private sources necessary for the fulfillment of its obligations under this Contract. All references in this Contract to the "Code" shall mean City's Code of Ordinances, including any amendments thereto or re-codification thereof unless the context clearly indicates otherwise. CONTRACTOR shall obtain copies of all necessary licenses and permits from Subcontractors required for the Work before Subcontractors begin Work at the Site. CONTRACTOR shall retain such evidence in its files and make available to CITY within ten (10) days after CITY's written request.

E. Americans with Disabilities Act. CONTRACTOR agrees to comply, during the course of this Contract, with all provisions of Title II of the 2010 ADA Standards for Accessible Design as amended from time to time.

F. Affirmative Action. If the Contract Price exceeds $300,000.00 and CONTRACTOR employs fifty (50) or more people, CONTRACTOR shall comply with City's Affirmative Action requirements in accordance with the provisions of Chapter 3 of City's Code, the rules and regulations relating to those sections, and any additions or amendments thereto. CONTRACTOR shall not discriminate against any employee or applicant for employment because of race, color, sex, religion, national origin or ancestry, disability, sexual orientation, gender identity or age in a manner prohibited by Chapter 3 of City's Code.

CONTRACTOR shall:

1. Submit, in print or electronic format, a copy of CONTRACTOR'S current certificate of compliance to the City's Civil Rights and Equal Opportunity Department (CREO) prior to receiving the first payment under the contract, unless a copy has already been submitted to CREO at any point within the previous two calendar years. If, and only if, CONTRACTOR does not possess a current certification of compliance, CONTRACTOR shall submit, in print or electronic format, a copy of its affirmative action program to CREO prior to receiving the first payment under the contract, unless a copy has already been submitted to CREO at any point within the previous two calendar years.

2. Require any Subcontractor awarded a subcontract exceeding $300,000.00 to affirm that Subcontractor has an affirmative action program in place and will maintain the affirmative action program in place for the duration of the subcontract.

3. Obtain from any Subcontractor awarded a subcontract exceeding $300,000.00 a copy of the Subcontractor's current certificate of compliance and tender a copy of the same, in print or electronic format, to CREO within thirty (30) days from the date the subcontract is executed. If, and only if, Subcontractor does not possess a current certificate of compliance, CONTRACTOR shall obtain a copy of the Subcontractor's affirmative action program and tender a copy of the same, in print or electronic format, to CREO within thirty (30) days from the date the subcontract is executed.

City has the right to take action as directed by City's Civil Rights and Equal Opportunity Department to enforce this provision. If CONTRACTOR fails, refuses or neglects to comply with the provisions of Chapter 3 of City's Code, then such failure shall be deemed a total breach of this Contract and this Contract may be terminated, canceled or suspended, in whole or in part, and CONTRACTOR may be declared ineligible for any further contracts funded by City for a period of one (1) year. This is a material term of this Contract.

G. **Minority and Women Business Enterprises and Workforce**. City is committed to ensuring that minorities and women participate to the maximum extent possible in the performance of City's construction contracts. If minority and women business enterprise (M/WBE) goals have been set for this Contract, CONTRACTOR agrees to comply with all requirements of City's Minority and Women's Business Enterprise Program as enacted in City's Code, Sections 3-421 through 3-469 and as hereinafter amended. CONTRACTOR shall meet or exceed both the MBE and WBE goals set forth in its Contractor Utilization Plan/Request for Waiver. If workforce utilization goals are applicable to this Contract, CONTRACTOR agrees to comply with all requirements of City's Construction Employment Program as enacted in City's Code, Sections 3-501 through 3-527 and as hereinafter amended. CONTRACTOR shall meet or exceed the construction employment goals unless the same shall have been waived in the manner provided by law. CONTRACTOR's compliance with this provision is a material part of this Contract.

H. **Records.**

1. For purposes of this section:

(a) "City" shall mean the City Auditor, the City's Internal Auditor, the City's Director of Civil Rights and Equal Opportunity, the City Manager, the City department administering this Contract and their delegates and agents.

(b) “Record” shall mean any document, book, paper, photograph, map, sound recordings or other material, regardless of physical form or characteristics, made or received in connection with this Contract and all Contract amendments and renewals.

2. CONTRACTOR shall maintain and retain all Records for a term of five (5) years that shall begin after the expiration or termination of this Contract and all Contract amendments. City shall have a right to examine or audit all Records and CONTRACTOR shall provide access to City of all records upon ten (10) days written notice from the City.

I. **Prevailing Wage.**

1. CONTRACTOR shall comply and require its Subcontractors to comply with;

a. sections 290.210 to 290.340, RSMO the State of Missouri Prevailing Wage Law (the “Law”); and

b. 8 CSR 30-3.010 to 8 CSR 30-3.060, the Prevailing Wage Law Rules (the “Rules”); and

c. the Annual Wage Order (Wage Order) issued by the State of Missouri’s Department of Labor and Industrial Relations; and

d. any applicable Annual Incremental Wage Increase (Wage Increase) to the Annual Wage Order.

2. The Law, Rules, Annual Wage Order and any Wage Increase are incorporated into and made part hereof this Contract and shall be collectively referred to in this Section as the “Prevailing Wage Requirements.”

3. CONTRACTOR shall pay and require its Subcontractors to pay to all workers performing work under this Contract not less than the prevailing hourly rate of wages for the class or type of work performed by the worker in accordance with the Law, Rules, Wage Order and any applicable Wage Increase. CONTRACTOR shall take whatever steps are necessary to insure that the prevailing hourly wage rates are paid and that all workers for CONTRACTOR and each of its Subcontractors are paid for the class or type of work performed by the worker in accordance with the Prevailing Wage Requirements. If CONTRACTOR shall fail to start to perform CONTRACTOR’s obligations under the Contract Documents within sixty (60) days from the Effective Date of the Contract, CONTRACTOR and each of its subcontractors shall be obligated to pay all workers in accordance with any new Wage Order, as subsequently amended by any applicable Wage Increase, issued by the Department of Labor and Industrial Relations within the aforementioned sixty (60) day period. The new Wage Order and any applicable Wage Increase shall govern notwithstanding the fact that the Wage Order being replaced might be physically attached or incorporated in the Contract Documents.

4. Prior to each of its Subcontractors beginning Work on the Site, CONTRACTOR shall require each Subcontractor to complete CITY’s Form 00490 entitled “Pre-contract Certification” that sets forth the Subcontractor’s prevailing wage and tax compliance history for the two (2) years prior to the bid. CONTRACTOR shall retain one (1) year and make the Pre-contract Certifications available to CITY within five (5) days after written request.

5. CONTRACTOR shall:

a. Keep and require each of its Subcontractors engaged in the construction of public works in performance of the Contract to keep full and accurate records on City’s “Daily Labor Force Report” Form indicating the worker’s name, occupational title or classification group & skill and the workers’ hours. City shall furnish blank copies of the Daily Labor Force Report Form to Contractor for its use and for distribution to Subcontractors. Contractor shall submit its and its Subcontractors Daily Labor Force Reports to City each day; and

b. Submit, and require each of its Subcontractors engaged in the construction of public works in performance of the Contract to submit electronically, in a format prescribed by the City, Certified Payroll Report Information indicating the worker's name, address, social security number, occupation(s), craft(s) of every worker employed in connection with the public work together with the number of hours worked by each worker and the actual wages paid in connection with the Project and other pertinent information as requested by the City; and

c. Submit, and require each of its Subcontractors engaged in the construction of public works in performance of the Contract to submit, electronically, in format prescribed by the City, a Payroll Certification. The Payroll Certification must be signed by the employee or agent who pays or supervises the payment of the workers employed under the Contract for the Contractor and each Subcontractor; and

d. The Daily Labor Force Report, documents used to compile information for the Certified Payroll Report, and Payroll Certification are collectively referred to in this Section as the "Records."

6. CONTRACTOR shall submit its and its Subcontractors Daily Labor Force Reports to CITY each day. CONTRACTOR shall make all of CONTRACTOR's and Subcontractors' Records open to inspection by any authorized representatives of OWNER and the Missouri Department of Labor and Industrial Relations at any reasonable time and as often as they may be necessary and such Records shall not be destroyed or removed from the State of Missouri for a period of one (1) year following the completion of the public work in connection with which the Records are made. CONTRACTOR shall have its and its Subcontractors Certified Payroll Reports and Payroll Certifications available at the CONTRACTOR's office and shall provide the Records to the City electronically at City's sole discretion. In addition, all Records shall be considered a public record and CONTRACTOR shall provide the Records to the CITY in the format required by the CITY within three (3) working days of any request by CITY at the CONTRACTOR's cost. CITY, in its sole discretion, may require CONTRACTOR to send any of the Records directly to the person who requested the Record at CONTRACTOR's expense.

7. CONTRACTOR shall post and keep posted a clearly legible statement of all prevailing hourly wage rates to be paid to all workers employed by CONTRACTOR and each of its Subcontractors in the performance of this Contract in a prominent and easily accessible place at the Site of the Work by all workers.

8. If the Contract Price exceeds $250,000.00, CONTRACTOR shall and shall require each Subcontractor engaged in any construction of public works to have its name, acceptable abbreviation or recognizable logo and the name of the city and state of the mailing address of the principal office of the company, on each motor vehicle and motorized self-propelled piece of equipment which is used in connection with the Project during the time the CONTRACTOR or Subcontractor is engaged on the project. The sign shall be legible from a distance of twenty (20') feet, but the size of the lettering need not be larger than two (2") inches. In cases where equipment is leased or where affixing a legible sign to the equipment is impractical, the CONTRACTOR may place a temporary stationary sign, with the information required pursuant to this section, at the main entrance of the Project in place of affixing the required information on the equipment so long as such sign is not in violation of any state or federal statute, rule or regulation. Motor vehicles which are required to have similar information affixed thereto pursuant to requirements of a regulatory agency of the state or federal government are exempt from the provisions of this subsection.

9. CONTRACTOR must correct any errors in CONTRACTOR's or any Subcontractors' Records, or CONTRACTOR's or any Subcontractors' violations of the Law, Rules, Annual Wage Order and any Wage Increase within fourteen (14) calendar days after notice from CITY.

10. CONTRACTOR shall and shall require its Subcontractors to cooperate with the CITY and the Department of Labor and Industrial Relations in the enforcement of this Section, the Law, Rules, Annual Wage Order and any Wage Increase. Contractor shall and shall require its Subcontractors to permit CITY and the Department of Labor and Industrial Relations to interview any and all workers during working hours on the Project at CONTRACTOR's sole cost and expense.

11. CONTRACTOR shall file with CITY, upon completion of the Project and prior to final payment therefore, affidavits from CONTRACTOR and each of its Subcontractors, stating that each has fully complied with the provisions and requirements of the Missouri Prevailing Wage Law. CITY shall not make final payment until the affidavits, in proper form and order, from CONTRACTOR and each of its Subcontractors, are filed by CONTRACTOR.

12. CONTRACTOR shall forfeit as a statutory penalty to the CITY one hundred dollars ($100.00) for each worker employed, for each calendar day, or portion thereof, such worker is paid less than the prevailing hourly rates for any work done under this Contract, by CONTRACTOR or by any of CONTRACTOR's Subcontractors. If CONTRACTOR or any of its Subcontractors have violated any section(s) of 290.210 to 290.340, RSMo, in the course of the execution of the Contract, CITY shall when making payments to the CONTRACTOR becoming due under this Contract, withhold and retain therefrom all sums and amounts due and owing as a result of any violation of sections 290.210 to 290.340, RSMo.

J. **Prevailing Wage Damages**. CONTRACTOR acknowledges and agrees that, based on the experience of CITY, violations of the Missouri Prevailing Wage Act, whether by CONTRACTOR or its Subcontractors, commonly result in additional costs to CITY. CONTRACTOR agrees that additional costs to CITY for any particular violation are difficult to establish and include but are not limited to: costs of construction delays, additional work for CITY, additional interest expenses, investigations, and the cost of establishing and maintaining a special division working under the City Manager to monitor prevailing wage compliance.

1. In the event of the failure by CONTRACTOR or any of its Subcontractors to pay wages as provided in the Missouri Prevailing Wage Act, CITY shall be entitled to deduct from the Contract Price, and shall retain as liquidated damages, one hundred dollars ($100.00) per day, per worker who is paid less than the prevailing hourly rate of wages, to approximate the additional costs. The sum shall be deducted, paid or owed whether or not the Contract Times have expired.

2. CITY shall give written notice to CONTRACTOR setting forth the workers, who have been underpaid, the amount of the statutory penalty and the amount of the liquidated damages as provided for in this Subparagraph J**.** CONTRACTOR shall have fourteen (14) calendar days to respond, which time may be extended by CITY upon written request. If CONTRACTOR fails to respond within the specified time, the CITY's original notice shall be deemed final. If CONTRACTOR responds to CITY's notice, CITY will furnish CONTRACTOR a final decision in writing within five (5) days of completing any investigation.

K. **Missouri Secretary of State Business Entity Registration**. CONTRACTOR shall obtain from all Subcontractors for the Project, a copy of their current certificate of good standing or fictitious name registration from the Missouri Secretary of State before they begin work on the Site. CONTRACTOR shall retain such documents in its files and make available to CITY within ten (10) days after written request.

L. **Tropical Hardwoods**. The provisions of Code Section 2-1872, restricting the use of tropical hardwoods, shall apply to this Contract.

M. **Preference for Missouri Products**. Pursuant to Section 71.140 RSMo., preference shall be given to materials, products, supplies and all other articles produced, manufactured, made or grown within the State of Missouri.

N. **Guidelines for Open Excavations**.

1. CONTRACTOR shall restore required excavations to the level of the adjacent surfaces as soon as practicable. Unsupervised open excavations on public properties are discouraged at all times. If CONTRACTOR, in performance of the Work, makes or causes to be made any excavation in, upon, under, through or adjoining any street, sidewalk, alley, park, boulevard, parkway or any other public properties, and shall leave any part or portion thereof open, CONTRACTOR shall provide effective protection to the public.

2. CONTRACTOR shall protect and secure all excavations in roadways in compliance with existing federal, state and local codes and standards, including, but not limited to the most current edition of the Manual of Uniform Traffic Control Devices. CONTRACTOR shall protect and secure all unsupervised excavations not within roadways, either by covering or fencing.

a. Covering. A protective cover that can sustain the weight of persons or of objects that are placed upon it may be installed over an unsupervised excavation. The cover shall be secured to the ground to prevent movement. Protective covers shall have no opening(s) or protuberance(s) of sufficient size to cause a fall and/or injury. Advance warning devices shall be installed as necessary.

b. Fencing. Fencing to prevent entry may be installed surrounding an unsupervised excavation not protectively covered in its entirety. The fencing shall be a minimum of 42" in height. The fencing shall be constructed in such a manner that it is adequately secured and will remain upright at all times under normal Site conditions. All protective coverings and fences over and around excavations shall be inspected at least daily to assure integrity. Protective coverings and/or fences in heavily trafficked areas shall be inspected more often as necessary.

O. **Notification of Utilities**. CONTRACTOR shall adhere to the provisions of Sections 319.010 et seq., RSMo., which requires that a person or firm making an excavation in any public street, road or alley, right of way dedicated to public use, utility easement of record, or within any private street or private property do so only after giving notice to, and obtaining information from, owners of Underground Facilities. The 24-hour, toll-free accident prevention hotline number in Missouri is 1-800-344-7483 (1-800-Digrite).

P. Employee Eligibility Verification. CONTRACTOR shall adhere to the provisions of Sections 285.525 et seq., RSMo., which requires that for any contract exceeding five thousand dollars ($5,000.00), CONTRACTOR shall execute and submit an affidavit, in a form prescribed by CITY, affirming that CONTRACTOR does not knowingly employ any person in connection with the contracted services who does not have the legal right or authorization under federal law to work in the United States as defined in 8 U.S.C.§ 1324a(h)(3). CONTRACTOR shall attach to the affidavit documentation sufficient to establish CONTRACTOR'S enrollment and participation in an electronic verification of work program operated by the United States Department of Homeland Security (E-Verify) or an equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, under the Immigration Reform and Control Act of 1986. CONTRACTOR may obtain additional information about E-Verify and enroll at https://e-verify.uscis.gov/enroll/StartPage.aspx?JS=YES. For those Contractors enrolled in E-Verify, the first and last pages of the E-Verify Memorandum of Understanding that CONTRACTOR will obtain upon successfully enrolling in the program shall constitute sufficient documentation for purposes of complying with this Section. CONTRACTOR shall submit the affidavit and attachments to CITY prior to execution of the Contract, or at any point during the term of the Contract if requested by City.

Q. **OSHA 10-Hour Training Requirement**. CONTRACTOR and any subcontractor working under this Contract shall require every employee on the Site to complete a ten-hour construction safety program which meets the requirements of Section 292.675, RSMo, except for those employees who shall have previously completed the required program and hold documentation to that effect. CONTRACTOR shall remove or require the removal of any

person from the Site who is subject to this requirement and who does not complete or is unable to produce documentation of their successful completion of the required program within the time limitations prescribed by Section 292.675, RSMo. CONTRACTOR shall forfeit the sum of two thousand five hundred dollars ($2,500.00), in addition to one hundred dollars ($100.00) per employee each calendar day, or portion thereof, the employee(s) shall continue to be employed without having completed the required program within the time limitations prescribed by Section 292.675, RSMo. CITY shall be entitled to withhold and retain any amounts due and owing hereunder when making payment to CONTRACTOR.

R. Clean Air Act and Clean Water Act. CONTRACTOR shall comply with requirements of the Clean Air Act (42 U.S.C. 7401 *et seq*.); Clean Water Act (33 U.S.C. 1251 *et seq*.), Missouri Clean Water Law (Chapter 644 RSMo), Code of Federal regulations (Title 40: Protection of Environment, Title 33: Navigation and Navigable Waters) and the rules of the Missouri Code of State Regulations (CSR Title 10).

S. Contract information Management System. If applicable, CONTRACTOR shall comply with CITY's Contract Information Management System requirements. CONTRACTOR shall use CITY's Internet web based Contract Information Management System/Project Management Communications Tool provided by CITY and protocols included in that software during the term of this Contract. CONTRACTOR shall maintain user applications to CITY's provided system for all personnel, subcontractors or suppliers as applicable and shall require subcontractors/subconsultants to maintain same.

T. Anti-Discrimination Against Israel. If this Contract exceeds $100,000.00 and CONTRACTOR employs at least ten employees, pursuant to Section 34.600, RSMo., by executing this Contract, CONTRACTOR certifies it is not currently engaged in and shall not, for the duration of this contract, engage in a boycott of goods or services from the State of Israel; companies doing business in or with Israel or authorized by, licensed by, or organized under the laws of the State of Israel; or persons or entities doing business in the State of Israel.

U. Ban the Box in Hiring and Promotion

a. Pursuant to Section 38-104, City Code Ordinances, CONTRACTOR shall not base a hiring or promotional decision on an applicant's criminal history or sentence related thereto, unless the employer can demonstrate that the employment-related decision was based on all information available including consideration of the frequency, recentness and severity of a criminal record and that the record was reasonably related to the duties and responsibilities of the position.

b. Notwithstanding subsection (a), CONTRACTOR may inquire about an applicant's criminal history after it has been determined that the individual is otherwise qualified for the position, and only after the applicant has been interviewed for the position. Any such inquiry may be made of all applicants who are within the final selection pool of candidates from which a job will be filled.

c. This provision shall not apply to positions where employers are required to exclude applicants with certain criminal convictions from employment due to local, state or federal law or regulation.

V. Title VI of the Civil Rights Act of 1964

a. Title VI of the Civil Rights Act of 1964 requires that no person in the United States shall, on the grounds of race, color, or national or origin (including limited English proficient individuals), be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance. The City of Kansas City, Missouri requires compliance with the requirements of Title VI in all of its programs and activities regardless of the funding source.

b. CONTRACTOR shall not discriminate on the grounds of race, color, or national or origin (including limited English proficient individuals).

W. Non-discrimination in Employment

CONTRACTOR shall not discriminate against any employee or candidate for employment on the basis of an individual's race, hair texture or hair style associated with an individual's race, color, sex, religion, national origin, or ancestry, disability, sexual orientation, gender identity or age in a manner prohibited by Chapter 38 of the City Code. CONTRACTOR shall not engage in any discrimination as prohibited by Chapter 3 of the City Code.

X. Quality Services Assurance Act

If this Contract exceeds $160,000.00, CONTRACTOR certifies that CONTRACTOR will pay all employees who will work on this Contract in the city limits of Kansas City, Missouri at least $15.00 per hour in compliance with the City's Quality Services Assurance Act, Section 3-66, Code of Ordinances unless City has granted CONTRACTOR an exemption pursuant to the Quality Services Assurance Act.

6.11 Taxes

A. CONTRACTOR shall pay all sales, consumer, use and other similar taxes required to be paid by CONTRACTOR in accordance with the Laws or Regulations of the place of the Project which are applicable during the performance of the Work.

B. **Tax Compliance**.

1. As a condition precedent to CITY making its first payment to CONTRACTOR under this Contract, CONTRACTOR shall furnish to CITY sufficient proof from City's Commissioner of Revenue, dated not more than one (1) year prior to the date provided to CITY, verifying that CONTRACTOR is in compliance with the license and tax ordinances administered by City's Revenue Division of the Finance Department.

2. As a condition precedent to Subcontractors performing any Work under this Contract, CONTRACTOR shall obtain from Subcontractor sufficient proof from City's Commissioner of Revenue, dated not more than one (1) year before the date Subcontractor begins Work, verifying that the Subcontractor is in compliance with the license and tax ordinances administered by City's Revenue Division of the Finance Department. CONTRACTOR shall retain such documentation in its files and make available to CITY within ten (10) days after a written request.

3. As a condition precedent to CITY making final payment under this Contract, if this Contract is longer than one (1) year and exceeds the dollar threshold established by ordinance and included in the Supplementary Conditions, CONTRACTOR shall furnish to CITY sufficient proof from City's Commissioner of Revenue, dated not more than one (1) year before the filing of a final Application for Payment, verifying that CONTRACTOR is in compliance with the license and tax ordinances administered by City's Revenue Division of the Finance Department.

4. If this Contract is longer than one (1) year and exceeds the dollar threshold established by ordinance and included in the Supplementary Conditions, CONTRACTOR shall obtain from Subcontractors sufficient proof from City's Commissioner of Revenue, dated not more than one (1) year before the date of CONTRACTOR's final payment to the Subcontractor, that the Subcontractor was or is in compliance with the license and tax ordinances administered by City's Revenue Division of the Finance Department. CONTRACTOR shall retain such documentation in its files and make available to CITY within ten (10) days after written request.

5. If, at the time of final payment to CONTRACTOR, CONTRACTOR is unable to obtain from all its Subcontractors, if any, and furnish to CITY sufficient proof from City's Commissioner of Revenue that all its Subcontractors are in compliance with the license and tax ordinances administered by City's Revenue Division of the Finance Department, CITY may approve final payment to CONTRACTOR if CITY determines that CONTRACTOR has made a good faith effort to furnish evidence or that there are other extenuating circumstances which make it impossible for CONTRACTOR to furnish sufficient proof.

C. **Missouri Sales Tax Exemption**. Pursuant to Section 144.062, RSMo, CITY is a Missouri exempt entity and tangible personal property to be incorporated or consumed in the construction of this Project may be purchased without sales tax. CITY shall furnish CONTRACTOR a Missouri Project Exemption Certificate for Sales Tax at the time of issuance of the Notice to Proceed.

6.12 Use of Site and Other Areas

A. CONTRACTOR shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas identified in and permitted by the Contract Documents and other areas permitted by Laws or Regulations. CONTRACTOR shall not unreasonably encumber the Site and the other areas with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to the Site or the other areas, or to the owner or occupant thereof, or of any adjacent land or areas, resulting from the performance of the Work.

B. Should any claim be made by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law. In case of a failure on the part of the CONTRACTOR to restore such property or to make good such damage or injuries, the CITY may, upon forty-eight (48) hours written notice to the CONTRACTOR, repair, rebuild or otherwise restore such property as the CITY may deem necessary, and the cost thereof will be deducted from any moneys due or which may become due the CONTRACTOR under this Contract.

C. CONTRACTOR shall, to the fullest extent permitted by Laws or Regulations, defend, indemnify and hold harmless CITY, DESIGN PROFESSIONAL, Consultants and the officers, directors, employees, agents and other consultants of each and any of them from and against all claims, costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or resulting from any claim or action, legal or equitable, brought by any such owner or occupant against CITY, DESIGN PROFESSIONAL or any other party indemnified hereunder to the extent caused by or based upon CONTRACTOR's performance of the Work.

D. During the progress of the Work, CONTRACTOR shall keep the Site and the other areas free from accumulations of waste materials, rubbish and other debris resulting from the Work. At the completion of the Work CONTRACTOR shall remove all waste materials, rubbish and debris from Site and other areas as well as all tools, appliances, construction equipment and machinery and surplus materials. CONTRACTOR shall leave the Site clean and ready for utilization or occupancy by CITY at Substantial Completion of the Work. CONTRACTOR shall restore to all property not designated for alteration by the Contract Documents to its pre-Work condition.

E. CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.13 Record Documents

A. CONTRACTOR shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, the Contract, Written Amendments, Change Orders, Work

Change Directives, and written interpretations and clarifications in good order and annotated to show all changes made during construction. These record documents, together with all approved Samples and a counterpart of all approved Shop Drawings, will be available to CITY and DESIGN PROFESSIONAL for reference. Upon completion of the Work, these record documents, Samples and Shop Drawings will be delivered to DESIGN PROFESSIONAL for CITY.

6.14 Safety and Protection

A. CONTRACTOR shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. CONTRACTOR shall comply with all applicable Laws or Regulations relating to the safety of persons or property to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for safety and protection. CONTRACTOR shall deliver to CITY a copy of CONTRACTOR'S Health and Safety Plan as provided in the Notice of Intent to Contract.

B. CONTRACTOR shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation and replacement of their property. All damage, injury or loss to any property referred to in Paragraph 6.14 B.2 or 6.14 B.3 caused, directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor, Supplier or any other person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of CITY, DESIGN PROFESSIONAL, Consultant, or anyone employed by any of them or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of CONTRACTOR, Subcontractor, Supplier or other person or organization directly or indirectly employed by any of them). CONTRACTOR's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and DESIGN PROFESSIONAL has issued a notice to CONTRACTOR in accordance with Paragraph 14.07 that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion). CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and Underground Facilities not designated for removal, relocation or replacement in the course of the Work.

6.15 Safety Representative

A. In accordance with OSHA standards, CONTRACTOR shall designate a qualified and experienced safety representative whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs. CONTRACTOR's safety representative shall remain at the Site whenever there is Work in progress and shall immediately notify CITY of any emergencies or accidents occurring at the Site

6.16 Hazard Communication Programs

A. CONTRACTOR shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.17 Emergencies

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, CONTRACTOR, without special instruction or authorization from CITY or DESIGN PROFESSIONAL, is obligated to act to prevent threatened damage, injury or loss. CONTRACTOR shall give CITY and DESIGN PROFESSIONAL prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If CITY determines that a change in the Contract Documents is required because of the action taken by CONTRACTOR in response to an emergency, a Work Change Directive or Change Order will be issued.

B. A change in the Contract Documents pursuant to Paragraph 6.15 A will not be an automatic authorization of, nor a condition precedent to, entitlement to adjustment in the Contract Price or Contract Times. If CITY and CONTRACTOR are unable to agree on entitlement to, or magnitude of, an equitable adjustment in the Contract Price or Contract Times, a Claim may be made therefore as provided in Article 16. However, OWNER, DESIGN PROFESSIONAL and Consultants shall not be liable to CONTRACTOR for any costs, losses or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all other dispute resolution costs) sustained by CONTRACTOR on or in connection with any other project or anticipated project.

6.18 Shop Drawings and Samples

A. CONTRACTOR shall submit Shop Drawings to DESIGN PROFESSIONAL for review and approval in accordance with the accepted schedule of Shop Drawings and Sample submittals (see Paragraph 2.07). All submittals shall be identified as DESIGN PROFESSIONAL may require and in the number of copies specified in the General Requirements. The data shown on the Shop Drawings shall be complete with respect to quantities, dimensions, specified performance and design criteria, materials and similar data to show DESIGN PROFESSIONAL the services, materials and equipment CONTRACTOR proposes to provide and to enable DESIGN PROFESSIONAL to review the information for the limited purposes required by Paragraph 6.18 D.

B. CONTRACTOR shall also submit Samples to DESIGN PROFESSIONAL for review and approval in accordance with said accepted schedule of Shop Drawings and Sample submittals. Each Sample shall be identified clearly as to material, Supplier, pertinent data such as catalog numbers and the use for which intended and otherwise as DESIGN PROFESSIONAL may require to enable DESIGN PROFESSIONAL to review the submittal for the limited purposes required by Paragraph 6.18 D. The numbers of each Sample to be submitted will be as specified in the Specifications.

C. **Submittal Procedures**:

1. Before submitting each Shop Drawing or Sample, CONTRACTOR shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar information with respect thereto;

b. all materials with respect to intended use, fabrication, shipping, handling, storage, assembly and installation pertaining to the performance of the Work;

c. all information relative to means, methods, techniques, sequences and procedures of construction and safety precautions and programs incident thereto; and

d. CONTRACTOR shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's obligations under the Contract Documents with respect to CONTRACTOR's review and approval of that submittal.

3. At the time of each submission, CONTRACTOR shall give DESIGN PROFESSIONAL specific written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, the notice to be in a written communication separate from the submittal, and, in addition, shall cause a specific notation to be made on each Shop Drawing and Sample submitted to DESIGN PROFESSIONAL for review and approval of each such variation.

D. **DESIGN PROFESSIONAL's Review**:

1. DESIGN PROFESSIONAL will review and approve Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample submittals accepted by DESIGN PROFESSIONAL as required by Paragraph 2.06. DESIGN PROFESSIONAL's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation into the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. DESIGN PROFESSIONAL's review and approval will not extend to means, methods, techniques, sequences or procedures of construction (except where a particular means, method, technique, sequence or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. DESIGN PROFESSIONAL's review and approval of Shop Drawings or Samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called DESIGN PROFESSIONAL's attention to each such variation at the time of submission as required by Paragraph 6.18 C.3, and DESIGN PROFESSIONAL has given written approval of each such variation by specific written notation thereof incorporated into or accompanying the Shop Drawing or Sample approval; nor will any approval by DESIGN PROFESSIONAL relieve CONTRACTOR from responsibility for complying with the requirements of Paragraph 6.18 C.1.

E. Where a Shop Drawing or Sample is required by the Contract Documents or the schedule of Shop Drawings and Sample submissions accepted by DESIGN PROFESSIONAL as required by Paragraph 2.06, any related Work performed prior to DESIGN PROFESSIONAL's review and approval of the pertinent submittal will be at the sole expense and responsibility of CONTRACTOR.

F. CONTRACTOR shall make corrections required by DESIGN PROFESSIONAL and shall return the required number of corrected copies of Shop Drawings and submit as required new Samples for review and approval. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by DESIGN PROFESSIONAL on previous submittals.

6.19 Continuing the Work

A. CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with CITY No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as CITY and CONTRACTOR may otherwise agree in writing.

6.20 CONTRACTOR's General Warranty and Guarantee

A. CONTRACTOR warrants and guarantees to CITY, DESIGN PROFESSIONAL and Consultants that all Work will be in accordance with the Contract Documents and will not be

defective. CONTRACTOR's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification or improper maintenance or operation by persons other than CONTRACTOR, Subcontractors, Suppliers or any other individual or entity for whom CONTRACTOR is responsible; or

2. normal wear and tear under normal usage.

B. CONTRACTOR's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the Work in accordance with the Contract Documents:

1. observations by DESIGN PROFESSIONAL;

2. recommendation of any progress or final payment by DESIGN PROFESSIONAL;

3. the issuance of a certificate of Substantial Completion or any payment related thereto by CITY to CONTRACTOR;

4. use or occupancy of the Work or any part thereof by OWNER;

5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by DESIGN PROFESSIONAL;

6. any inspection, test or approval by others; or

7. any correction of defective Work by CITY.

C. Nonconforming Work is rejected unless expressly accepted in writing by the CITY's Representative.

ARTICLE 7 OTHER WORK

7.01 Related Work at Site

A. CITY may perform other work related to the Project at the Site by CITY's own forces, or let other direct contracts therefore, or have other work performed by utility owners. If such other work is to be performed and such fact was not noted in the Contract Documents, then:

1. Written notice thereof will be given to CONTRACTOR prior to starting any such other work, and

2. CONTRACTOR may make a Claim therefore as provided in Article 16 if CONTRACTOR believes that such performance involves additional expense to CONTRACTOR or requires additional time and the parties are unable to agree as to the amount or extent thereof.

B. CONTRACTOR shall afford each other contractor who is a party to such a direct contract, and each utility owner (and CITY, if CITY is performing the additional work with CITY's employees) proper and safe access to the Site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work and shall properly connect and coordinate the Work with theirs. Unless otherwise provided in the Contract Documents, CONTRACTOR shall do all cutting, fitting and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of CITY and the others whose work will be affected. The duties and responsibilities of CONTRACTOR under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of CONTRACTOR in said direct contracts between CITY and such utility owners and other contractors.

C. If the proper execution or results of any part of CONTRACTOR's Work depends upon work performed by others under this Article 7, CONTRACTOR shall inspect such other work and promptly report to CITY and DESIGN PROFESSIONAL in writing any delays, defects or deficiencies in such other work that render it unavailable or unsuitable for the proper execution or results of CONTRACTOR's Work. CONTRACTOR's failure to report same will constitute an acceptance of such other work as fit and proper for integration with CONTRACTOR's Work, except for latent or non-apparent defects and deficiencies in such other work.

7.02 Coordination

A. If CITY contracts with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the person, firm or corporation who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified;
2. the specific matters to be covered by such authority and responsibility will be itemized; and
3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, CITY shall have sole authority and responsibility in respect of such coordination.

ARTICLE 8 CITY'S RESPONSIBILITIES

8.01 Communications to CONTRACTOR

A. Except as otherwise provided in these General Conditions, CITY shall issue all communications to CONTRACTOR.

8.02 Replacement of DESIGN PROFESSIONAL

A. In case of termination of the employment of DESIGN PROFESSIONAL, CITY shall appoint a DESIGN PROFESSIONAL whose status under the Contract Documents shall be that of the former DESIGN PROFESSIONAL.

8.03 Furnish Data and Prompt Payment

A. CITY shall promptly furnish the data required of OWNER under the Contract Documents and shall make payments to CONTRACTOR when they are due.

8.04 Lands and Easements; Reports and Tests

A. CITY's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to CITY's duty to identify and make available to CONTRACTOR copies of reports of explorations and tests of subsurface conditions at the Site and drawings of physical conditions in existing structures at or contiguous to the Site that have been utilized by DESIGN PROFESSIONAL in preparing the Contract Documents.

8.05 Insurance

A. CITY's responsibilities, if any, for purchasing and maintaining liability and property insurance are set forth in Article 5 and the Supplementary Conditions.

8.06 Change Orders

A. CITY is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.07 Inspections, Tests and Approvals

A. CITY's responsibility for certain inspections, tests and approvals is set forth in Paragraph 13.02 F.

8.08 Limitations on CITY's Responsibilities

A. The CITY shall not supervise, direct or have control or authority over, nor be responsible for, CONTRACTOR's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws or Regulations applicable to the furnishing or performance of the Work. CITY will not be responsible for CONTRACTOR's failure to perform or furnish the Work in accordance with the Contract Documents.

8.09 Undisclosed Hazardous Environmental Condition

A. CITY's responsibility for an undisclosed Hazardous Environmental Condition uncovered or revealed at the Site is set forth in Paragraph 4.06.

8.10 Evidence of Financial Arrangements

A. CITY will furnish CONTRACTOR reasonable evidence that financial arrangements have been made to satisfy OWNER's obligations under the Contract.

8.11 CITY's Representative

A. CITY will provide a representative during the construction period. The duties, responsibilities and the limitations of authority of the CITY '"s Representative during construction are set forth in the Contract Documents.

8.12 Visits to Site

A. CITY's Representative will make visits to the Site at intervals appropriate to the various stages of construction as CITY's Representative deems necessary in order to observe the progress that has been made and the quality of the various aspects of CONTRACTOR's executed Work. Based on information obtained during such visits and observations, CITY's Representative will endeavor to determine, in general, if the Work is proceeding in accordance with the Contract Documents. CITY's Representative will not be required to make exhaustive or continuous on-Site inspections to check the quality or quantity of the Work.

ARTICLE 9 DESIGN PROFESSIONAL's STATUS DURING CONSTRUCTION

9.01 General Scope of DESIGN PROFESSIONAL's Duties

A. DESIGN PROFESSIONAL's efforts will be directed toward providing for CITY a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of visits to the Site and on-Site observations, DESIGN PROFESSIONAL will keep CITY informed of the progress of the Work and will endeavor to guard CITY against defective Work. DESIGN PROFESSIONAL's visits to the Site and on-Site observations are subject to all the limitations on DESIGN PROFESSIONAL's authority and responsibility set forth in Paragraph 9.08.

9.02 Resident Project Representative

A. If CITY and DESIGN PROFESSIONAL agree, DESIGN PROFESSIONAL will furnish a resident Project representative to assist DESIGN PROFESSIONAL in providing more extensive observation of the Work. The responsibilities, authority and limitations thereon of any such resident Project representative and assistants will be as provided in Paragraph 9.08 and in the Supplementary Conditions.

9.03 Clarifications and Interpretations

A. DESIGN PROFESSIONAL will issue with reasonable promptness written clarifications or interpretations (which may be in the form of Drawings) of the requirements of the Drawings and Specifications prepared by the DESIGN PROFESSIONAL as DESIGN PROFESSIONAL may determine necessary, which shall be consistent with the intent of and reasonably inferable from the Contract Documents. Such written clarifications and interpretations will be binding on CITY and CONTRACTOR. If CITY or CONTRACTOR believes that a written clarification or

interpretation justifies an adjustment in the Contract Price pursuant to Article 11 and/ or the Contract Times pursuant to Article 12 and the parties are unable to agree to the amount or extent thereof, if any, a Claim may be made therefore as provided in Article 16.

9.04 Rejecting Defective Work

A. DESIGN PROFESSIONAL will have authority to disapprove or reject Work which DESIGN PROFESSIONAL believes to be defective, that DESIGN PROFESSIONAL believes will not produce a completed Project that conforms to the Contract Documents, or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. DESIGN PROFESSIONAL will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04 B, whether or not the Work is fabricated, installed or completed.

9.05 Shop Drawings, Change Orders and Payments

A. In connection with DESIGN PROFESSIONAL's authority as to Shop Drawings and Samples, see Paragraph 6.18.

B. In connection with DESIGN PROFESSIONAL's authority as to Change Orders, see Article 10.

C. In connection with DESIGN PROFESSIONAL's authority as to Applications for Payment, see Article 14.

9.06 Determinations for Unit Prices

A. DESIGN PROFESSIONAL will initially determine the actual quantities and classifications of Unit Price Work performed by CONTRACTOR. DESIGN PROFESSIONAL will review with CONTRACTOR the DESIGN PROFESSIONAL's preliminary determinations on such matters before rendering a written opinion thereon (by recommendation of an Application for Payment or otherwise to the CITY). CITY reserves the right to make a final determination of the actual quantities and classifications of Unit Price Work in reviewing an Application for Payment. Within ten (10) days after the date of receipt of any such decision, CONTRACTOR may deliver to CITY and to DESIGN PROFESSIONAL written notice of intention to appeal CITY's decision pursuant to Article 16.

9.07 Decisions on Requirements of Contract Documents and Acceptability of Work

A. DESIGN PROFESSIONAL will be the initial interpreter of the requirements of the Drawings and Specifications prepared by DESIGN PROFESSIONAL and judge of the acceptability of the Work thereunder.

B. When functioning as interpreter and judge under this Paragraph 9.07, DESIGN PROFESSIONAL will not show partiality to OWNER or CONTRACTOR.

C. Claims, disputes and other matters relating to the acceptability of the Work, quantities and classifications of Unit Price Work, or the interpretation of the requirements of the Contract Documents pertaining to the performance and furnishing of the Work will be referred initially to CITY's Representative in writing with a request for a formal decision in accordance with Article 16.

9.08 Limitations on DESIGN PROFESSIONAL's Authority and Responsibilities

A. Neither DESIGN PROFESSIONAL's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by DESIGN PROFESSIONAL in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise or performance of any authority or responsibility by DESIGN PROFESSIONAL shall create, impose or give rise to any duty owed by DESIGN PROFESSIONAL to CONTRACTOR, any Subcontractor, any Supplier, any other person or organization, or to any surety for or employee or agent of any of them.

B. DESIGN PROFESSIONAL will not supervise, direct, control or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws or Regulations applicable to the furnishing or performance of the Work. DESIGN PROFESSIONAL will not be responsible for CONTRACTOR's failure to perform or furnish the Work in accordance with the Contract Documents.

C. DESIGN PROFESSIONAL will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other person or organization performing or furnishing any of the Work.

D. DESIGN PROFESSIONAL's review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, Bonds and certificates of inspection, tests and approvals and other documentation required to be delivered by Paragraph 14.07 will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests and approvals, that the results certified indicate compliance with, the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 9.08 shall also apply to DESIGN PROFESSIONAL's Consultants, resident Project representative and assistants as identified in the Supplementary Conditions.

ARTICLE 10 CHANGES IN THE WORK

10.01 Authorized Changes in the Work

A. Without invalidating the Contract and without notice to any surety, CITY may, at any time or from time to time, order additions, deletions or revisions in the Work. Such additions, deletions or revisions will be authorized by a Written Amendment, a Change Order, or a Work Change Directive. Upon receipt of any such document, CONTRACTOR shall promptly proceed with the Work involved that will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If CITY and CONTRACTOR are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price pursuant to Article 11 or an adjustment of the Contract Times pursuant to Article 12 or both that should be allowed as a result of a Work Change Directive, a Claim may be made therefore as provided in Article 16.

10.02 Unauthorized Changes in the Work

A. CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.17 or in the case of uncovering Work as provided in Paragraph 13.04.

10.03 Signing of Change Orders

A. CITY and CONTRACTOR, and DESIGN PROFESSIONAL shall sign appropriate Change Orders covering:

1. changes in the Work which are:

    a. ordered by CITY pursuant to Paragraph 10.01 A; or

    b. required because of acceptance of defective Work under Paragraph 13.08 or correcting defective Work under Paragraph 13.09; or

    c. agreed to by the parties;

2. changes in the Contract Price or Contract Times or both which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times or both which embody the substance of any written decision recommended by DESIGN PROFESSIONAL and approved by CITY pursuant to Paragraph 9.06, provided that, in lieu of signing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws or Regulations, but during any such appeal, CONTRACTOR shall carry on the Work and adhere to the progress schedule as provided in Paragraph 6.19.

10.04 Notification to Surety

A. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times or both) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR's responsibility, and the amount of each applicable Bond will be adjusted accordingly.

ARTICLE 11 CHANGE OF CONTRACT PRICE

11.01 Change of Contract Price

A. The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to CONTRACTOR for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by CONTRACTOR shall be at CONTRACTOR's expense without change in the Contract Price.

B. The Contract Price may only be changed by a Change Order. Any request for an adjustment in the Contract Price shall be based on written notice delivered within fourteen (14) calendar days after occurrence of the event giving rise to the request or within fourteen (14) calendar days after first recognition of the conditions giving rise to the request. Prior notice is not required for requests or claims relating to an emergency endangering life or property as described in Paragraph 6.16. Thereafter, the CONTRACTOR shall submit written documentation of its request, including appropriate supporting documentation, within ten (10) calendar days after giving notice, unless the CITY grants an extension based on good cause shown by the CONTRACTOR that such additional time is warranted.

C. The value of any Work covered by a Change Order or of any request for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by Unit Prices contained in the Contract Documents, by application of such Unit Prices to the quantities of the items involved (subject to the provisions of Paragraph 11.04); or

2. where the Work involved is not covered by Unit Prices contained in the Contract Documents, by a mutually agreed lump sum; or

3. where the Work involved is not covered by Unit Prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 11.01 C.2, on the basis of the Cost of the Work (determined as provided in Paragraphs 11.02 A and B) plus a CONTRACTOR's fee for overhead and profit (determined as provided in Paragraph 11.01 D).

D. The CONTRACTOR's fee allowed to CONTRACTOR for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under Paragraphs 11.02 A.1 and 11.02 A.2, the CONTRACTOR's fee shall be ten percent (10%);

b. for costs incurred under Paragraph 11.02 A.3, the CONTRACTOR's fee shall be five percent (5%);

c. where one or more tiers of subcontracts are on the basis of the Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.01 D.2 and 11.02 A.1 through A.3 is that the Subcontractor who actually performs or furnishes the Work, at whatever tier, will be a paid a fee of ten percent (10%) of the costs incurred by such Subcontractor under Paragraphs 11.02 A.1 and 11.02 A.2 and that any higher tier Subcontractor and CONTRACTOR will each be paid a fee of five percent (5%) of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.02 A.4, 11.02 A.5 and 11.02 B;

e. the amount of credit to be allowed by CONTRACTOR to CITY for any change which results in a net decrease in cost will be the amount of the actual net decrease in costs plus a deduction in CONTRACTOR's fee by an amount equal to five percent (5%) of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in CONTRACTOR's fee shall be computed on the basis of the net change in accordance with Paragraphs 11.01 D.2.a through 11.01 D.2.e, inclusive.

E. Whenever the Cost of the Work is to be determined pursuant to Paragraphs 11.02 A and B, CONTRACTOR shall establish and maintain records thereof in accordance with generally accepted accounting practices and submit in form acceptable to CITY an itemized cost breakdown together with supporting data.

11.02 Cost of the Work

A. The term "Cost of the Work" means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. When the value of any Work covered by a Change Order or when a request for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to CONTRACTOR will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the request. Except as otherwise agreed to in writing by CITY, costs covered by Change Orders or requests shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items and shall not include any costs itemized in 11.02 B:

1. Payroll costs for employees in the direct employ of CONTRACTOR in the performance of the Work, using occupational titles and job classifications agreed upon by CITY and CONTRACTOR. Such employees shall include, without limitation, job Site superintendents, foremen and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, workers'" compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing the Work after regular working hours, on Saturdays, Sundays or legal holidays, shall be included in the above to the extent authorized by OWNER.

2. Cost of all materials and equipment furnished and incorporated into the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to CONTRACTOR unless CITY deposits funds with CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to CITY. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to CITY, and CONTRACTOR shall make provisions so that they may be obtained.

3. Payments made by CONTRACTOR to Subcontractors for Work performed or furnished by Subcontractors. If required by CITY, CONTRACTOR shall obtain competitive bids from Subcontractors acceptable to OWNER and CONTRACTOR and shall deliver such bids to CITY who will then determine, with the advice of DESIGN PROFESSIONAL, which bids, if any, will be accepted. If any subcontract provides that the Subcontractor is to be paid on the basis of the Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as CONTRACTOR's Cost of the Work and fee as provided in Paragraphs 11.01 D and E and 11.02 A and B. All subcontracts shall be subject to the other provisions of the Contract Documents insofar as applicable.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys and accountants) employed for services specifically related to the Work when such services are approved in advance by CITY in writing.

5. Other costs including the following:

a. The proportion of necessary transportation, travel and subsistence expenses of CONTRACTOR's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the Site and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value of such items used but not consumed which remain the property of CONTRACTOR.

c. Rentals of all construction equipment and machinery and the parts thereof whether rented from CONTRACTOR or others in accordance with rental agreements approved by CITY with the advice of DESIGN PROFESSIONAL, and the costs of transportation, loading, unloading, installation, assembly, dismantling and removal thereof, all in accordance with the terms of said rental agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the Work.

d. Applicable sales, consumer, use or similar taxes related to the Work**,** and for which CONTRACTOR is liable, imposed by Laws or Regulations.

e. Deposits lost for causes other than negligence of CONTRACTOR, any Subcontractor or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses required to perform the Work.

f. Losses and damages (and related expenses) caused by damage to the Work**,** not compensated by insurance or otherwise, sustained by CONTRACTOR in connection with the performance and furnishing of the Work (except losses and damages within the deductible amounts of property insurance established by CITY in accordance with Article 5), provided they have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of CITY. No such losses, damages and expenses shall be included in the Cost of the Work for the purpose of determining CONTRACTOR's fee. If, however, any such loss or damage requires reconstruction and CONTRACTOR is placed in charge thereof, CONTRACTOR shall be paid for those services a fee proportionate to that stated in Paragraph 11.01 D.2.

g. The cost of utilities, fuel and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expressage and similar petty cash items in connection with the Work.

i. Cost of premiums for additional or increased Bonds, or for insurance required because of approved changes in the Work.

B. Costs excluded: The term “Cost of the Work” shall not include any of the following:

1. Payroll costs and other compensation of CONTRACTOR’s officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks and other personnel employed by CONTRACTOR whether at the Site or in CONTRACTOR’s principal or a branch office for general administration of the Work (if not specifically included in the agreed upon occupational titles and job classifications referred to in Paragraph 11.02 A.1 or specifically covered by Paragraph 11.02 A.4), all of which are to be considered administrative costs covered by the CONTRACTOR’s fee.

2. Expenses of CONTRACTOR’s principal and branch offices other than CONTRACTOR’s office at the Site.

3. Any part of CONTRACTOR’s capital expenses, including interest on CONTRACTOR’s capital employed for the Work and charges against CONTRACTOR for delinquent payments.

4. Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials, or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 11.02 A.

11.03 Cash Allowances

A. It is understood that CONTRACTOR has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be furnished and performed for such sums as may be acceptable to CITY. CONTRACTOR agrees that:

1. the allowances include the cost to CONTRACTOR (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. CONTRACTOR’s costs for unloading and handling on the Site, labor, installation costs, overhead, profit and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

B. Prior to final payment, an appropriate Change Order will be issued by CITY to reflect actual amounts due CONTRACTOR on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.04 Unit Price Work

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Contract. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made in accordance with Paragraph 9.06.

B. Each unit price will be deemed to include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR’s overhead and profit for each separately identified item.

C. CITY or CONTRACTOR may negotiate an adjustment of the price per unit of Unit Price Work stated in the Contract if:

1. the quantity of any item of Unit Price Work performed by CONTRACTOR differs by twenty percent (20%) or more from the estimated quantity of such item indicated in the Contract; and

2. there is no corresponding adjustment with respect to any other item of Work; and

3. CONTRACTOR believes that CONTRACTOR is entitled to an increase in Contract Price as a result of having incurred additional expense or CITY believes that CITY is entitled to a decrease in Contract Price.

11.05 Dispute Resolution

A. If CITY and CONTRACTOR are unable to agree on entitlement to, or magnitude of, an equitable adjustment in the Contract Price in accordance with Article 11 within fourteen (14) calendar days from the receipt of supporting documentation of the request pursuant to 11.01.B., unless the CITY grants an extension based on good cause shown by the CONTRACTOR that such additional time is warranted, then a Claim for such adjustment may be made pursuant to Article 16.

ARTICLE 12 CONTRACT TIMES

12.01 Time of the Essence

A. All times stated in the Contract Documents are of the essence of the Contract.

12.02 Change of Contract Times

A. The Contract Times (or Milestones) may only be changed by a Change Order. Any request for an adjustment in the Contract Times shall be based on written notice delivered within fourteen (14) calendar days after occurrence of the event giving rise to the request or within fourteen (14) calendar days after first recognition of the conditions giving rise to the request. Thereafter, the CONTRACTOR shall submit written documentation of its requests, including appropriate supporting documentation, within ten (10) days after giving notice, unless the CITY grants an extension based on good cause shown by the CONTRACTOR that such additional time is warranted.

12.03 Proof Required To Justify an Extension of Time For Excusable and Compensable Delays

A. In support of any request for an extension of the Contract Times pursuant to this Article, CONTRACTOR must demonstrate to the reasonable satisfaction of the CITY that the critical path of the approved baseline project schedule was delayed. CONTRACTOR shall be entitled to an increase in contract time for the number of days that the critical path was delayed solely as a result of the compensable or excusable event. A compensable or excusable event includes, but is not limited to:

1. unreasonable delay of issuance of Notice to Proceed by CITY;
2. CITY's unreasonable delay of delivery furnished materials, equipment, or work;
3. unreasonable delay responding to shop drawings and submittals;
4. CITY's unreasonable delay in issuing a Change Order;
5. an order by the CITY to stop the Work where the CONTRACTOR was not at fault; and
6. other reasonable grounds as determined by the City in its sole discretion.

B. CONTRACTOR shall compare the critical path of the approved baseline project schedule to the actual critical path of the Work, identifying the specific impact of the compensable or excusable event.

C. CONTRACTOR shall submit to the CITY a written time impact analysis illustrating the influence of each compensable or excusable event on the date of Substantial Completion. The

time impact analysis shall demonstrate the time impact based on the date of the delay in time and the event time computations or all affected activities.

D. If the critical path of the Work is delayed by "Force Majeure", the CONTRACTOR shall be entitled only to an extension of the Contract Times for the number of days of delay to the critical path. For purposes of this paragraph, "Force Majeure" shall mean fire, tornado, flood, earthquake, war, act of terrorism, civil disturbance, or labor strikes away from the project site.

E. Extensions of contract time pursuant to the this section will be granted only to the extent that the time adjustments exceed the total float time available when the event causing the delay occurred.

12.04 Delays Within CONTRACTOR's Control

A. The Contract Times (or Milestones) will not be extended due to delays within the control of CONTRACTOR. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of CONTRACTOR.

12.05 Delays Beyond the CITY's and CONTRACTOR's Control

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of both CITY and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay.

12.06 Delay Damages

A. In no event shall CITY be liable to CONTRACTOR, any Subcontractor, any Supplier, any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from:

1. delays caused by or within the control of CONTRACTOR, or

2. delays beyond the control of CITY or CONTRACTOR including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God or acts or neglect by utility owners or other contractors performing other work as contemplated by Article 7.

B. Nothing in this Paragraph 12.06 bars a change in Contract Price pursuant to this Article 12 to compensate CONTRACTOR due to delay, interference, or disruption directly attributable to actions or inaction of CITY, DESIGN PROFESSIONAL, Consultant or anyone for whom CITY, DESIGN PROFESSIONAL or Consultant is responsible.

12.07 Dispute Resolution

A. If CITY and CONTRACTOR are unable to agree on entitlement to, or magnitude of, an equitable adjustment in the Contract Time in accordance with Article 12 within fourteen (14) calendar days from the receipt of supporting documentation of the request pursuant to 12.02, unless the CITY grants an extension based on good cause shown by the CONTRACTOR that such additional time is warranted, then a Claim for such adjustment may be made pursuant to Article 16.

ARTICLE 13 TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 Access to Work

A. CITY, DESIGN PROFESSIONAL, Consultants, other representatives and personnel of CITY, independent testing laboratories and governmental agencies with jurisdictional interests will have access to the Site and Work at reasonable times for their observation, inspecting and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's Site safety procedures and programs so that they may comply therewith as applicable.

13.02 Tests and Inspections

A. CONTRACTOR shall give DESIGN PROFESSIONAL and CITY's Representative timely notice of readiness of the Work for all required inspections, tests or approvals, and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. If any Work (or the work of others at the Site) that is to be inspected, tested or approved is covered by CONTRACTOR without written approval required by Paragraphs 13.02 D or 13.02 E, it must, if requested by CITY's Representative, be uncovered for observation.

C. Uncovering Work as provided in Paragraph 13.02 B, shall be at CONTRACTOR's expense unless CONTRACTOR has given DESIGN PROFESSIONAL and CITY's Representative timely notice of CONTRACTOR's intention to cover the same and DESIGN PROFESSIONAL and CITY's Representative have not acted with reasonable promptness in response to such notice.

D. If Laws or Regulations of any public body (including City) having jurisdiction require any Work (or part thereof) specifically to be inspected, tested or approved by an employee or other representative of such public body, CONTRACTOR shall assume full responsibility for arranging and obtaining such inspections, tests or approvals, pay all costs in connection therewith, and furnish DESIGN PROFESSIONAL and CITY's Representative the required certificates of inspection or approval.

E. CONTRACTOR shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests or approvals required for CITY's and DESIGN PROFESSIONAL's acceptance of materials or equipment to be incorporated into the Work, or acceptance of materials, mix designs, or equipment submitted for approval prior to CONTRACTOR's purchase thereof for incorporation into the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to CITY and DESIGN PROFESSIONAL.

F. CITY shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests or approvals covered by Paragraph 13.02 D and E;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04 B shall be paid as provided in said Paragraph 13.04 B; and

3. as otherwise specifically provided in the Contract Documents.

13.03 Notice of Defects

A. Prompt notice of all defective Work of which either CITY or DESIGN PROFESSIONAL has actual knowledge will be given to CONTRACTOR. Defective Work may be rejected, corrected or accepted as provided in this Article 13.

13.04 Uncovering Work

A. If any Work (or the work of others at the Site) is covered contrary to the written request of DESIGN PROFESSIONAL or CITY's Representative, it must, if requested by CITY's Representative, be uncovered for DESIGN PROFESSIONAL's or CITY's Representative's observation and replaced at CONTRACTOR's expense.

B. If CITY considers it necessary or advisable that covered Work be observed by DESIGN PROFESSIONAL or CITY's Representative or be inspected or tested by others, CONTRACTOR, at CITY's request, shall uncover, expose or otherwise make available for observation, inspection or testing as may be required, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is defective, CONTRACTOR shall pay all costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) caused by, arising out of or resulting from such uncovering, exposure, observation, inspection and testing and of satisfactory replacement or reconstruction

(including but not limited to all costs of repair or replacement of work of others); and CITY shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, CITY may make a Claim therefore as provided in Article 16. If, however, such Work is not found to be defective, CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Times (or Milestones), or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement and reconstruction. If the parties are unable to agree as to the amount or extent thereof, CONTRACTOR may make a Claim therefore as provided in Article 16.

13.05 CITY May Stop the Work

A. If the Work is defective, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract Documents, CITY may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of CITY to stop the Work shall not give rise to any duty on the part of CITY to exercise this right for the benefit of CONTRACTOR, any Subcontractor, Supplier, other individual or entity or any surety or employee or agent of any of them.

13.06 Correction or Removal of Defective Work

A. If required by CITY, CONTRACTOR shall promptly, as directed, either correct all defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by either DESIGN PROFESSIONAL or CITY's Representative, remove it and replace it with Work that is not defective. CONTRACTOR shall pay all costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) caused by or resulting from such correction or removal (including but not limited to all costs of repair or replacement of work of others).

13.07 Correction Period

A. If within one (1) year after the date of Substantial Completion, or such longer period of time as may be prescribed by Laws or Regulations, by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for CONTRACTOR's use by CITY or permitted by Laws and Regulations as contemplated in Paragraph 6.10 is found to be defective, CONTRACTOR shall promptly, without cost to CITY and in accordance with CITY's written instructions:

1. correct the repair of damages to such land or areas; or

2. correct such defective Work, or if it has been rejected by CITY, remove it from the Site and replace it with Work that is not defective; and

3. satisfactorily correct or remove and replace any damage to other Work or to the work of others or damage to other lands or areas resulting therefrom. If CONTRACTOR does not promptly comply with the terms of such instructions, or in the event of an emergency where delay by CONTRACTOR would cause serious risk of loss or damage, CITY may have the defective Work corrected or the rejected Work removed and replaced, and all costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) caused by or resulting from such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by CONTRACTOR.

B. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications or by Written Amendment.

C. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder

with respect to such Work will be extended for an additional period of one (1) year, or such longer period of time as may be prescribed within Paragraph 13.07 A, after such correction or removal and replacement has been satisfactorily completed.

D. CONTRACTOR's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for or waiver of the provisions of any applicable statute of limitation or repose.

13.08 Acceptance of Defective Work

A. If, instead of requiring correction or removal and replacement of defective Work, CITY prefers to accept it, CITY may do so. CONTRACTOR shall pay all costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to CITY's evaluation of and determination to accept such defective Work and shall pay OWNER for the diminished value of the Work. If any such acceptance occurs prior to DESIGN PROFESSIONAL's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions into the Contract Documents with respect to the Work and, due to the diminished value of the Work, CITY shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, CITY may make a Claim therefore as provided in Article 16. If the acceptance of defective Work occurs after such recommendation, an appropriate amount shall be paid by CONTRACTOR to CITY.

13.09 CITY May Correct Defective Work

A. If CONTRACTOR fails within a reasonable time after written notice from DESIGN PROFESSIONAL or CITY's Representative to correct defective Work or to remove and replace rejected Work as required by CITY in accordance with Paragraph 13.06, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, CITY may, after seven (7) days written notice to CONTRACTOR, correct and remedy any such deficiency.

B. CITY shall proceed expeditiously when exercising the rights and remedies under this Paragraph 13.09. In connection with such corrective and remedial action, CITY may exclude CONTRACTOR from all or part of the Site; take possession of all or part of the Work and suspend CONTRACTOR's services related thereto; take possession of CONTRACTOR's tools, appliances, construction equipment and machinery at the Site; and incorporate into the Work all materials and equipment stored at the Site or for which CITY has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow CITY, CITY's Representative, agents and employees, CITY's other contractors, DESIGN PROFESSIONAL and Consultants access to the Site to enable CITY to exercise the rights and remedies under this Paragraph 13.09.

C. All costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by CITY in exercising such rights and remedies will be charged against CONTRACTOR and a Change Order will be issued incorporating the necessary revisions into the Contract Documents with respect to the Work; and CITY shall be entitled to an appropriate decrease in the Contract Price. If CITY and CONTRACTOR are unable to agree as to the amount thereof, CITY may make a Claim therefore as provided in Article 16. Such Claims for costs, losses and damages will include but not be limited to all costs of repair or replacement of work of others destroyed or damaged by correction, removal and replacement of CONTRACTOR's defective or rejected Work.

D. CONTRACTOR shall not be allowed an extension of the Contract Times (or Milestones) because of any delay in the performance of the Work attributable to the exercise by CITY of CITY's rights and remedies under Paragraphs 13.06 and 13.09.

ARTICLE 14 PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 Schedule of Values

A. 01290.02 Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into form 01290.01 Application for Payment acceptable to DESIGN PROFESSIONAL and CITY. Progress payments for Unit Price Work will be based on the number of units completed.

14.02 Application for Progress Payments

A. Application for Payment

1. At least twenty (20) days before the date stipulated in the Supplementary Conditions for each progress payment (but not more often than once a month), CONTRACTOR shall submit to DESIGN PROFESSIONAL for review an Application for Payment filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated into the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, paid invoice or other documentation warranting that CITY has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect CITY"'s interest therein, all of which will be subject to CITY's approval.

2. Beginning with the second Application for Payment, each Application shall include:

a. an affidavit of CONTRACTOR stating that all previous progress payments received for the Work have been applied to discharge CONTRACTOR's legitimate obligations associated with prior Applications for Payment, and

b. a copy of the most recent 00485.01 M/WBE Monthly Utilization Report CONTRACTOR has submitted to the CITY's Civil Rights and Equal Opportunity Department.

c. a copy of the most recent 00485.02 Project Workforce Monthly Report and 00485.03 Company-Wide Workforce Monthly Report CONTRACTOR has submitted to the OWNER's Civil Rights and Equal Opportunity Department.

d. an update to the approved schedule pursuant to paragraphs 6.04 and 6.05.

3. The amount of retainage with respect to progress payments will be stated in the Supplementary Conditions.

B. Review of Applications

1. DESIGN PROFESSIONAL will, within ten (10) days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to CITY, or return the Application to CONTRACTOR indicating in writing DESIGN PROFESSIONAL's reasons for refusing to recommend payment. In the latter case, CONTRACTOR shall make the necessary corrections and resubmit the Application.

a. After presentation of the Application for Payment to CITY, and if CITY's Representative agrees with DESIGN PROFESSIONAL's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02 B.4) become due and will be paid by CITY to CONTRACTOR, subject to the provisions of Laws or Regulations.

b. No payment shall be approved until the CONTRACTOR has submitted with the Application accompanying documentation as required by the Contract Documents, including, but not limited to, the documentation required by paragraphs 6.04 and 6.05.

2. DESIGN PROFESSIONAL's recommendation of any payment requested in an Application for Payment will constitute a representation by DESIGN PROFESSIONAL to CITY, based on DESIGN PROFESSIONAL's observations of the executed Work as an experienced and qualified DESIGN PROFESSIONAL and on DESIGN PROFESSIONAL's

review of the Application for Payment and the accompanying data and schedules, that to the best of DESIGN PROFESSIONAL's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.06, and to any other qualifications stated in the recommendation); and

c. the conditions precedent to CONTRACTOR being entitled to such payment appear to have been fulfilled in so far as it is DESIGN PROFESSIONAL's responsibility to observe the Work.

3. DESIGN PROFESSIONAL's recommendation of any payment, including final payment, shall not mean that DESIGN PROFESSIONAL is responsible for CONTRACTOR's means, methods, techniques, sequence or procedures of construction, safety precautions and programs incident thereto, or any failure of CONTRACTOR to comply with Laws or Regulations applicable to the furnishing or performance of Work.

4. DESIGN PROFESSIONAL may refuse to recommend the whole or any part of any payment if, in DESIGN PROFESSIONAL's opinion, it would be incorrect to make the representations to CITY referred to in Paragraph 14.02 B.2. DESIGN PROFESSIONAL may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended, to such extent as may be necessary in DESIGN PROFESSIONAL's opinion to protect CITY from loss because:

a. the Work is defective, or completed Work has been damaged requiring correction or replacement;

b. the Contract Price has been reduced by Written Amendment or Change Orders;

c. CITY has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or

d. DESIGN PROFESSIONAL has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.

C. Reduction in Payment

1. CITY may refuse to make payment of the full amount recommended by DESIGN PROFESSIONAL because:

a. Claims have been made by third parties against CITY on account of CONTRACTOR's performance or furnishing of the Work; or

b. Claims have been made by CITY against CONTRACTOR in connection with the Work, except where CONTRACTOR has delivered a specific Bond satisfactory to CITY to secure the satisfaction and discharge of such Claims;

c. there are other items entitling CITY to a set-off against the amount recommended; or

d. CITY has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02 B.4.a through c or 15.02 A.1 through 4; but CITY must give CONTRACTOR written notice (with a copy to DESIGN PROFESSIONAL) stating the reasons for such action and promptly pay CONTRACTOR the amount so withheld, or any adjustment thereto agreed to by CITY and CONTRACTOR, when CONTRACTOR corrects to CITY's satisfaction the reasons for such action; or

e. CITY has made a different determination of the actual quantities and classifications of Unit Price Work.

14.03 CONTRACTOR's Warranty of Title

A. CONTRACTOR warrants and guarantees that title to all Work, materials and equipment covered by any Application for Payment, whether incorporated into the Project or not, will pass to CITY no later than the time of payment, free and clear of all Liens.

14.04 Substantial Completion

A. When CONTRACTOR considers the entire Work ready for its intended use CONTRACTOR shall notify CITY and DESIGN PROFESSIONAL in writing that the entire Work is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that CITY issue a certificate of Substantial Completion. Within a reasonable time thereafter, CITY, together with CONTRACTOR and DESIGN PROFESSIONAL, shall make an inspection of the Work to determine the status of completion. If DESIGN PROFESSIONAL does not consider the Work substantially complete, DESIGN PROFESSIONAL will notify CONTRACTOR and CITY in writing giving the reasons therefore. If DESIGN PROFESSIONAL considers the Work substantially complete, DESIGN PROFESSIONAL will prepare and deliver to CITY a recommended certificate of Substantial Completion that shall establish the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. CITY shall have seven (7) days after receipt of the recommended certificate during which to make written objection to DESIGN PROFESSIONAL as to any provisions of the certificate or attached list. At the time of delivery of the recommended certificate of Substantial Completion, DESIGN PROFESSIONAL will deliver to CITY and CONTRACTOR a written recommendation as to division of responsibilities pending final payment between CITY and CONTRACTOR with respect to security, operation, safety, protection of the Work, maintenance, heat, utilities, insurance and warranties and guarantees.

B. CITY shall have the right to exclude CONTRACTOR from the Site after the date of Substantial Completion, but CITY shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

14.05 Partial Utilization

A. Use by CITY at CITY's option of any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which CITY, DESIGN PROFESSIONAL and CONTRACTOR agree constitutes a separately functioning and usable part of the Work that can be used by CITY for its intended purpose without significant interference with CONTRACTOR's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following:

1. CITY at any time may request CONTRACTOR in writing to permit CITY to use any such part of the Work which CITY believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees that such part of the Work is substantially complete, CONTRACTOR will certify to CITY and DESIGN PROFESSIONAL that such part of the Work is substantially complete and request CITY to issue a certificate of Substantial Completion for that part of the Work. CONTRACTOR at any time may notify CITY and DESIGN PROFESSIONAL in writing that CONTRACTOR considers any such part of the Work ready for its intended use and substantially complete and request CITY to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, CITY, together with CONTRACTOR and DESIGN PROFESSIONAL, shall make an inspection of that part of the Work to determine its status of completion. If DESIGN PROFESSIONAL does not consider that part of the Work to be substantially complete, DESIGN PROFESSIONAL will notify CITY and CONTRACTOR in writing, giving the reasons therefore. If DESIGN PROFESSIONAL considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

2. No occupancy or separate operation of part of the Work will be accomplished prior to compliance with the requirements of Paragraph 5.09 with respect to property insurance.

14.06 Final Inspection

A. Upon written notice from CONTRACTOR that the entire Work or an agreed portion thereof is complete, DESIGN PROFESSIONAL will make a final inspection with CITY and CONTRACTOR and will notify CONTRACTOR in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. CONTRACTOR shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 Final Payment

A. Application for Payment

1. After CONTRACTOR has completed all corrections required by Paragraph 14.06 to the satisfaction of DESIGN PROFESSIONAL and CITY's Representative and delivered in accordance with the Contract Documents all maintenance and operating instructions, schedules, guarantees, Bonds, certificates or other evidence of insurance required by Paragraph 5.04, certificates of inspection, marked-up record documents (as provided in Paragraph 6.13) and other documents, CONTRACTOR may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

a. all documentation required by the Contract Documents, including but not limited to the evidence of insurance required by Subparagraph 5.04 B.7; and

b. 01290.14 "Contractor Affidavit for Final Payment" from CONTRACTOR and 01290.15 "Subcontractor Affidavit for Final Payment" from all Subcontractors, regardless of tier.

B. Review of Application and Acceptance

1. If, on the basis of DESIGN PROFESSIONAL's and CITY's Representative's observation of the Work during construction and final inspection, and DESIGN PROFESSIONAL's and CITY's Representative's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, DESIGN PROFESSIONAL and CITY's Representative are satisfied that the Work has been completed and CONTRACTOR's other obligations under the Contract Documents have been fulfilled, DESIGN PROFESSIONAL will, within ten (10) days after receipt of the final Application for Payment, indicate in writing DESIGN PROFESSIONAL's and CITY's Representative's recommendation of payment and present the Application to CITY for payment. At the same time DESIGN PROFESSIONAL will also give written notice to CITY and CONTRACTOR that the Work is acceptable subject to the provisions of Paragraph 14.09.

2. Otherwise, DESIGN PROFESSIONAL will return the Application to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case CONTRACTOR shall make the necessary corrections and resubmit the Application to DESIGN PROFESSIONAL. After the presentation to CITY of the Application and accompanying documentation, in appropriate form and substance, including applicable federal and state prevailing wage provisions, and with DESIGN PROFESSIONAL's recommendation and notice of acceptability, the amount recommended by DESIGN PROFESSIONAL will become due and will be paid by CITY to CONTRACTOR in accordance with Laws and Regulations.

14.08 Final Completion Delayed

A. If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed and if DESIGN PROFESSIONAL so recommends and CITY concurs, CITY shall, upon

receipt of CONTRACTOR's final Application for Payment and recommendation of DESIGN PROFESSIONAL, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by CITY for Work not fully completed or corrected is less than the retainage stipulated in the Supplementary Conditions, and if Bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to DESIGN PROFESSIONAL with the Application for Payment. Payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 Waiver of Claims

A. The making and acceptance of final payment will constitute:

1. a waiver of all claims by CITY against CONTRACTOR, except claims previously made in writing and still unsettled, or claims arising from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from CONTRACTOR's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by CONTRACTOR against CITY other than those previously made in writing pursuant to Paragraphs 16.02 and 16.03 and still unsettled.

14.10 Completion of Work by CITY

A. If CITY must complete the Work, all costs and charges incurred by CITY, together with the cost of completing the Work under the Contract, will be deducted from any monies due or which may become due CONTRACTOR. If such expense exceeds the sum which would have been payable under the Contract, then CONTRACTOR and the surety shall be liable and shall pay to CITY the amount of such excess.

ARTICLE 15 SUSPENSION OF WORK AND TERMINATION

15.01 CITY May Suspend Work

A. Notwithstanding any other provision of this Contract, at any time and without cause, and at is sole and absolute discretion, CITY, may suspend the Work or any portion of the Work by written notice to CONTRACTOR, which will initially fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed in the notice unless the date is changed by a subsequent written notice from CITY. CONTRACTOR may be allowed an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any suspension if CONTRACTOR makes a Claim therefore in accordance with Article 16.

B. CONTRACTOR will not be allowed an adjustment in the Contract Price or an extension of the Contract Times if CITY suspends the Work because CONTRACTOR's acts or omissions create or cause an emergency that CITY believes affects the safety or protection of persons, the Work, or property at the Site or adjacent thereto. CITY may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been adequately addressed by CONTRACTOR; however, this right of CITY to stop the Work shall not give rise to any duty on the part of CITY to exercise this right for the benefit of CONTRACTOR, any Subcontractor, Supplier, other individual or entity or any surety or employee or agent of any of them.

15.02 CITY May Terminate for Default

A. CONTRACTOR may be deemed in default and CITY may terminate the services of CONTRACTOR upon the occurrence of any one or more of the following events:

1. CONTRACTOR fails to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under Paragraph 2.06 and 2.07 as adjusted from time to time pursuant to Paragraphs 6.04, 6.05, 12.02 and 12.03);

2. CONTRACTOR abandons the Work or declares its intention to abandon the Work;

3. CONTRACTOR assigns or attempts to assign its rights or obligations under this Contract or any part thereof to any third party without the prior written consent of CITY;

4. CONTRACTOR fails to make prompt payment duly owing to any subcontractor for Work completed in accordance to the Contract Documents or material supplier for materials delivered for incorporation into the Work within thirty (30) calendar days after payment was due;

5. CONTRACTOR fails to achieve the required dates of substantial and final completion;

6. CONTRACTOR disregards Laws or Regulations of any public body having jurisdiction;

7. CONTRACTOR disregards the authority of DESIGN PROFESSIONAL or OWNER; or

8. CONTRACTOR otherwise violates in any substantial way any provisions of the Contract Documents.

B. CITY may, after giving CONTRACTOR (and the surety) seven (7) days written notice and to the extent permitted by Laws or Regulations, terminate the services of CONTRACTOR, exclude CONTRACTOR from the Site and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment and machinery at the Site and use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), incorporate into the Work all materials and equipment stored at the Site or for which CITY has paid CONTRACTOR but which are stored elsewhere, and finish the Work as CITY may deem expedient. In such case, CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds all costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by CITY arising out of or resulting from completing the Work, such excess may be paid to CONTRACTOR. If such costs, losses and damages exceed such unpaid balance, CONTRACTOR shall pay the difference to CITY within fourteen (14) calendar days of CITY'S demand for payment. When exercising any rights or remedies under this Paragraph CITY shall not be required to competitively bid this work unless required by law.

C. Where CONTRACTOR's services have been so terminated by CITY, the termination will not affect any rights or remedies of CITY against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by CITY will not release CONTRACTOR from liability.

D. If, after a default termination, it is determined that the CONTRACTOR was not in default, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the CITY. The CITY shall then be liable to CONTRACTOR for only those costs enumerated in paragraph 15.03.

15.03 CITY May Terminate for Convenience

A. Notwithstanding any other provision of this Contract, upon seven (7) calendar days written notice to CONTRACTOR, CITY may, at its sole and absolute discretion, without cause and without prejudice to any other right or remedy of CITY, elect to terminate the Contract. In such case, CONTRACTOR shall, with thirty (30) calendar days of receiving notice of termination under this paragraph, submit to CITY its statement of costs and expenses and shall be paid:

1. for completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. for expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. for all costs, losses and damages incurred in settlement of terminated contracts with Subcontractors, Suppliers and others; and

4. for reasonable expenses directly attributable to termination if approved in advance by CITY.

B. CONTRACTOR shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

C. CONTRACTOR waives any costs not submitted to CITY pursuant to paragraph 15.03.A.

D. CITY shall, within thirty (30) calendar days after receipt of CONTRACTOR's statement, pay CONTRACTOR all amounts it determines are properly determined.

ARTICLE 16 CLAIMS AND DISPUTES

16.01 Definition

A. A Claim is a demand or assertion by the CONTRACTOR seeking, as a matter of right, the adjustment of Contract price and/or times with respect to the terms of the Contract.

16.02 Written Notice and Burden of Proof

A. Claims must be made by written notice pursuant to Paragraph 17.01. The written notice shall clearly indicate that the CONTRACTOR is making a claim. The responsibility to substantiate Claims shall rest with the CONTRACTOR. No Claim may be made under this Contract except as provided in this Article.

B. Certification of Claim: The written notice of Claim shall include the following statement signed by the CONTRACTOR's representative: "The CONTRACTOR certifies that all statements made and the facts set out in this claim are true and correct and that no false records have been submitted in support of this claim." **Strict compliance with this paragraph shall be a condition precedent to the creation, existence or validity of any Claim**.

16.03 Time Limits on Claims

A. The CONTRACTOR must give notice to the CITY within fourteen (14) calendar days after the denial of a request for or failure to reach an agreement on a change in Contract Price and/or change in Contract Time pursuant to Article 11 and Article 12 respectively. After the fourteen (14) day period for making Claims has expired, the Claim shall be considered waived.

B. The CONTRACTOR shall submit the Claim to the CITY's Representative.

16.04 Continuing Contract Performance

A. Pending final resolution of a Claim, unless otherwise agreed in writing, the CONTRACTOR shall proceed diligently with performance of the Work and the CITY shall continue to make payments in accordance with the Contract Documents. The CITY may, but is not obligated to, notify the Surety of the nature and amount of the Claim.

16.05 Injury or Damage to Person or Property

A. If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, of any of the other party's employees or agents, or of others for whose acts that party is legally liable, written notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding thirty (30) days after first observance. The notice shall provide sufficient detail to enable the other party to investigate the matter.

16.06 Initial Resolution of Claims and Disputes

A. After the CONTRACTOR has submitted the Claim to the CITY's Representative, the CITY'S Representative and CONTRACTOR'S Representative shall conduct a settlement conference within fourteen (14) calendar days from the date of receipt of the Claim. If the Claim is not settled within seven (7) calendar days following the date of the settlement conference, the CITY'S Representative and the CONTRACTOR's Representative shall state, in writing, following the conclusion of the seven (7) calendar day period, their respective position as to the matters in dispute.

B. The CITY'S and CONTRACTOR'S statement of positions shall state all known factual grounds for each party's position. If the dispute remains unresolved at the end of the seven (7) calendar days from submission of the parties' written position statements, the CONTRACTOR shall have the right to proceed with the pursuit of Claims pursuant to paragraph 16.07.

C. If a Claim has been resolved, the OWNER will prepare or obtain appropriate documentation.

16.07 Final Resolution of Claims and Disputes

A. All administrative procedures set forth in this contract must first be exhausted before suit is filed.

B. If the CITY'S Representative and the CONTRACTOR'S Representative are unable to resolve the dispute pursuant to 16.06, the parties must submit their statements of position to the Director, who shall review the Claim and make a decision within fourteen (14) calendar days.

C. Absent fraud, gross mistake or bad faith, the Director's decision shall be final and binding on CITY and CONTRACTOR within fourteen (14) calendar days after issuance. The CONTRACTOR shall give written notice to the CITY stating its intent to submit its Claim to a court of law pursuant to paragraph 17.05.A. within thirty (30) calendar days after notice of Director's decision.

D. The time frames for the Director's decision and for CONTRACTOR'S written notice of intent may be tolled by participation in voluntary mediation. Mediator selection and the procedures to be employed in voluntary mediation shall be mutually acceptable to the parties. Costs of the mediator shall be shared equally among the parties participating in the mediation. In no event shall any time frame be tolled more than 30 days for mediation. However, mediation may be employed at any time at the discretion and mutual agreement of the parties.

E. If the dispute is not resolved during voluntary mediation, The CONTRACTOR agrees that it will file no suit based on facts or evidentiary materials that were not presented for consideration to the CITY during the mediation process or of which the CONTRACTOR had knowledge and failed to present during the administrative procedures.

ARTICLE 17 MISCELLANEOUS

17.01 Giving Notice

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be given by personal delivery, by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice or by confirmed electronic facsimile transmission. Notice is effective on the date of personal delivery, deposit of registered or certified mail, postage prepaid, or confirmed electronic facsimile transmission.

17.02 Computation of Times

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last calendar day of such period. If the last day of such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 Cumulative Remedies

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the

warranties, guarantees and obligations imposed upon CONTRACTOR and all of the rights and remedies available to CITY and DESIGN PROFESSIONAL hereunder are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee or by other provisions of the Contract Documents, and the provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply.

17.04 Survival of Obligations

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract.

17.05 Controlling Law

A. This Contract shall be construed and governed in accordance with the laws of the State of Missouri without giving effect to Missouri's choice of law provisions. The CITY and CONTRACTOR: (1) shall submit exclusively to the jurisdiction of the state and federal courts located in Jackson County, Missouri and no other; (2) shall waive any and all objections to jurisdiction and venue; and (3) shall not raise forum non conveniens as an objection to the location of any litigation.

Section 00800.01 - U.S. Department of Transportation, Federal Aviation Administration, Advisory Circular No. 150/5370-10H – Standards for Specifying Construction of Airports

PART 1 – GENERAL PROVISIONS

Section 10. Definition of Terms
Section 20. Proposal Requirements and Conditions
Section 30. Award and Execution of Contract
Section 40. Scope of Work
Section 50. Control of Work
Section 60. Control of Materials
Section 70. Legal Relations and Responsibility to Public
Section 80. Prosecution and Progress
Section 90. Measurement and Payment

SECTION 10 DEFINITION OF TERMS

When the following terms are used in these specifications, in the contract, or in any documents or other instruments pertaining to construction where these specifications govern, the intent and meaning shall be defined as follows:

Paragraph Number	Term	Definition
10-01	**AASHTO**	The American Association of State Highway and Transportation Officials.
10-02	**Access Road**	The right-of-way, the roadway and all improvements constructed thereon connecting the airport to a public roadway.
10-03	**Advertisement**	A public announcement, as required by local law, inviting bids for work to be performed and materials to be furnished.
10-04	**Airport**	Airport means an area of land or water which is used or intended to be used for the landing and takeoff of aircraft; an appurtenant area used or intended to be used for airport buildings or other airport facilities or rights of way; airport buildings and facilities located in any of these areas, and a heliport.
10-05	**Airport Improvement Program (AIP)**	A grant-in-aid program, administered by the Federal Aviation Administration (FAA).
10-06	**Air Operations Area (AOA)**	The term air operations area (AOA) shall mean any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operation area shall include such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiway, or

Paragraph Number	Term	Definition
		apron.
10-07	**Apron**	Area where aircraft are parked, unloaded or loaded, fueled and/or serviced.
10-08	**ASTM International (ASTM)**	Formerly known as the American Society for Testing and Materials (ASTM).
10-09	**Award**	The Owner's notice to the successful bidder of the acceptance of the submitted bid.
10-10	**Bidder**	Any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.
10-11	**Building Area**	An area on the airport to be used, considered, or intended to be used for airport buildings or other airport facilities or rights-of-way together with all airport buildings and facilities located thereon.
10-12	**Calendar Day**	Every day shown on the calendar.
10-13	**Certificate of Analysis (COA)**	The COA is the manufacturer's Certificate of Compliance (COC) including all applicable test results required by the specifications.
10-14	**Certificate of Compliance (COC)**	The manufacturer's certification stating that materials or assemblies furnished fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer's authorized representative.
10-15	**Change Order**	A written order to the Contractor covering changes in the plans, specifications, or proposal quantities and establishing the basis of payment and contract time adjustment, if any, for work within the scope of the contract and necessary to complete the project.
10-16	**Contract**	A written agreement between the Owner and the Contractor that establishes the obligations of the parties including but not limited to performance of work, furnishing of labor, equipment and materials and the basis of payment. The awarded contract includes but may not be limited to: Advertisement, Contract form, Proposal, Performance bond, payment bond, General provisions, certifications and representations, Technical Specifications, Plans, Supplemental Provisions, standards incorporated by reference and issued addenda.

Paragraph Number	Term	Definition
10-17	**Contract Item (Pay Item)**	A specific unit of work for which a price is provided in the contract.
10-18	**Contract Time**	The number of calendar days or working days, stated in the proposal, allowed for completion of the contract, including authorized time extensions. If a calendar date of completion is stated in the proposal, in lieu of a number of calendar or working days, the contract shall be completed by that date.
10-19	**Contractor**	The individual, partnership, firm, or corporation primarily liable for the acceptable performance of the work contracted and for the payment of all legal debts pertaining to the work who acts directly or through lawful agents or employees to complete the contract work.
10-20	**Contractors Quality Control (QC) Facilities**	The Contractor's QC facilities in accordance with the Contractor Quality Control Program (CQCP).
10-21	**Contractor Quality Control Program (CQCP)**	Details the methods and procedures that will be taken to assure that all materials and completed construction required by the contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors.
10-22	**Control Strip**	A demonstration by the Contractor that the materials, equipment, and construction processes results in a product meeting the requirements of the specification.
10-23	**Construction Safety and Phasing Plan (CSPP)**	The overall plan for safety and phasing of a construction project developed by the airport operator, or developed by the airport operator's consultant and approved by the airport operator. It is included in the invitation for bids and becomes part of the project specifications.
10-24	**Drainage System**	The system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted from the airport area.
10-25	**Engineer**	The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for engineering, inspection, and/or observation of the contract work and acting directly or through an authorized representative.
10-26	**Equipment**	All machinery, together with the necessary supplies for upkeep and maintenance; and all tools and apparatus necessary for the proper construction and acceptable

Paragraph Number	Term	Definition
		completion of the work.
10-27	**Extra Work**	An item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, but which is found by the Owner's Engineer or Resident Project Representative (RPR) to be necessary to complete the work within the intended scope of the contract as previously modified.
10-28	**FAA**	The Federal Aviation Administration. When used to designate a person, FAA shall mean the Administrator or their duly authorized representative.
10-29	**Federal Specifications**	The federal specifications and standards, commercial item descriptions, and supplements, amendments, and indices prepared and issued by the General Services Administration.
10-30	**Force Account**	**a.** Contract Force Account - A method of payment that addresses extra work performed by the Contractor on a time and material basis. **b.** Owner Force Account - Work performed for the project by the Owner's employees.
10-31	**Intention of Terms**	Whenever, in these specifications or on the plans, the words "directed," "required," "permitted," "ordered," "designated," "prescribed," or words of like import are used, it shall be understood that the direction, requirement, permission, order, designation, or prescription of the Engineer and/or Resident Project Representative (RPR) is intended; and similarly, the words "approved," "acceptable," "satisfactory," or words of like import, shall mean approved by, or acceptable to, or satisfactory to the Engineer and/or RPR, subject in each case to the final determination of the Owner. Any reference to a specific requirement of a numbered paragraph of the contract specifications or a cited standard shall be interpreted to include all general requirements of the entire section, specification item, or cited standard that may be pertinent to such specific reference.
10-32	**Lighting**	A system of fixtures providing or controlling the light sources used on or near the airport or within the airport buildings. The field lighting includes all luminous signals, markers, floodlights, and illuminating devices used on or near the airport or to aid in the operation of aircraft landing at, taking off from, or taxiing on the airport surface.

Paragraph Number	Term	Definition
10-33	**Major and Minor Contract Items**	A major contract item shall be any item that is listed in the proposal, the total cost of which is equal to or greater than 20% of the total amount of the award contract. All other items shall be considered minor contract items.
10-34	**Materials**	Any substance specified for use in the construction of the contract work.
10-35	**Modification of Standards (MOS)**	Any deviation from standard specifications applicable to material and construction methods in accordance with FAA Order 5300.1.
10-36	**Notice to Proceed (NTP)**	A written notice to the Contractor to begin the actual contract work on a previously agreed to date. If applicable, the Notice to Proceed shall state the date on which the contract time begins.
10-37	**Owner**	The term "Owner" shall mean the party of the first part or the contracting agency signatory to the contract. Where the term "Owner" is capitalized in this document, it shall mean airport Sponsor only. The Owner for this project is City of Kansas City/ Kansas City Department of Aviation.
10-38	Passenger Facility Charge (PFC)	Per 14 Code of Federal Regulations (CFR) Part 158 and 49 United States Code (USC) § 40117, a PFC is a charge imposed by a public agency on passengers enplaned at a commercial service airport it controls.
10-39	**Pavement Structure**	The combined surface course, base course(s), and subbase course(s), if any, considered as a single unit.
10-40	**Payment bond**	The approved form of security furnished by the Contractor and their own surety as a guaranty that the Contractor will pay in full all bills and accounts for materials and labor used in the construction of the work.
10-41	**Performance bond**	The approved form of security furnished by the Contractor and their own surety as a guaranty that the Contractor will complete the work in accordance with the terms of the contract.
10-42	**Plans**	The official drawings or exact reproductions which show the location, character, dimensions and details of the airport and the work to be done and which are to be considered as a part of the contract, supplementary to the specifications. Plans may also be referred to as 'contract drawings.'

Paragraph Number	Term	Definition
10-43	**Project**	The agreed scope of work for accomplishing specific airport development with respect to a particular airport.
10-44	**Proposal**	The written offer of the bidder (when submitted on the approved proposal form) to perform the contemplated work and furnish the necessary materials in accordance with the provisions of the plans and specifications.
10-45	**Proposal guaranty**	The security furnished with a proposal to guarantee that the bidder will enter into a contract if their own proposal is accepted by the Owner.
10-46	**Quality Assurance (QA)**	Owner's responsibility to assure that construction work completed complies with specifications for payment.
10-47	**Quality Control (QC)**	Contractor's responsibility to control material(s) and construction processes to complete construction in accordance with project specifications.
10-48	**Quality Assurance (QA) Inspector**	An authorized representative of the Engineer and/or Resident Project Representative (RPR) assigned to make all necessary inspections, observations, tests, and/or observation of tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.
10-49	**Quality Assurance (QA) Laboratory**	The official quality assurance testing laboratories of the Owner or such other laboratories as may be designated by the Engineer or RPR. May also be referred to as Engineer's, Owner's, or QA Laboratory.
10-50	**Resident Project Representative (RPR)**	The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for all necessary inspections, observations, tests, and/or observations of tests of the contract work performed or being performed, or of the materials furnished or being furnished by the Contractor, and acting directly or through an authorized representative.
10-51	**Runway**	The area on the airport prepared for the landing and takeoff of aircraft.
10-52	**Runway Safety Area (RSA)**	A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft. See the construction safety and phasing plan (CSPP) for limits of the RSA.
10-53	**Safety Plan Compliance Document (SPCD)**	Details how the Contractor will comply with the CSPP.

Paragraph Number	Term	Definition
10-54	**Specifications**	A part of the contract containing the written directions and requirements for completing the contract work. Standards for specifying materials or testing which are cited in the contract specifications by reference shall have the same force and effect as if included in the contract physically.
10-55	**Sponsor**	A Sponsor is defined in 49 USC § 47102(24) as a public agency that submits to the FAA for an AIP grant; or a private Owner of a public-use airport that submits to the FAA an application for an AIP grant for the airport.
10-56	**Structures**	Airport facilities such as bridges; culverts; catch basins, inlets, retaining walls, cribbing; storm and sanitary sewer lines; water lines; underdrains; electrical ducts, manholes, handholes, lighting fixtures and bases; transformers; navigational aids; buildings; vaults; and, other manmade features of the airport that may be encountered in the work and not otherwise classified herein.
10-57	**Subgrade**	The soil that forms the pavement foundation.
10-58	**Superintendent**	The Contractor's executive representative who is present on the work during progress, authorized to receive and fulfill instructions from the RPR, and who shall supervise and direct the construction.
10-59	**Supplemental Agreement**	A written agreement between the Contractor and the Owner that establishes the basis of payment and contract time adjustment, if any, for the work affected by the supplemental agreement. A supplemental agreement is required if: (1) in scope work would increase or decrease the total amount of the awarded contract by more than 25%: (2) in scope work would increase or decrease the total of any major contract item by more than 25%; (3) work that is not within the scope of the originally awarded contract; or (4) adding or deleting of a major contract item.
10-60	**Surety**	The corporation, partnership, or individual, other than the Contractor, executing payment or performance bonds that are furnished to the Owner by the Contractor.
10-61	**Taxilane**	A taxiway designed for low speed movement of aircraft between aircraft parking areas and terminal areas.
10-62	**Taxiway**	The portion of the air operations area of an airport that has been designated by competent airport authority for movement of aircraft to and from the airport's runways,

Paragraph Number	Term	Definition
		aircraft parking areas, and terminal areas.
10-63	**Taxiway/Taxilane Safety Area (TSA)**	A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an aircraft. See the construction safety and phasing plan (CSPP) for limits of the TSA.
10-64	**Work**	The furnishing of all labor, materials, tools, equipment, and incidentals necessary or convenient to the Contractor's performance of all duties and obligations imposed by the contract, plans, and specifications.
10-65	**Working day**	A working day shall be any day other than a legal holiday, Saturday, or Sunday on which the normal working forces of the Contractor may proceed with regular work for at least six (6) hours toward completion of the contract. When work is suspended for causes beyond the Contractor's control, it will not be counted as a working day. Saturdays, Sundays and holidays on which the Contractor's forces engage in regular work will be considered as working days.
10-66	**Owner Defined terms**	None

Section 20 Proposal Requirements and Conditions

20-01 Advertisement (Notice to Bidders). Reference 00210 Instructions to Bidders

20-02 Qualification of bidders. Each bidder shall submit evidence of competency and evidence of financial responsibility to perform the work to the Owner at the time of bid opening.

Evidence of competency, unless otherwise specified, shall consist of statements covering the bidder's past experience on similar work, and a list of equipment and a list of key personnel that would be available for the work.

Each bidder shall furnish the Owner satisfactory evidence of their financial responsibility. Evidence of financial responsibility, unless otherwise specified, shall consist of a confidential statement or report of the bidder's financial resources and liabilities as of the last calendar year or the bidder's last fiscal year. Such statements or reports shall be certified by a public accountant. At the time of submitting such financial statements or reports, the bidder shall further certify whether their financial responsibility is approximately the same as stated or reported by the public accountant. If the bidder's financial responsibility has changed, the bidder shall qualify the public accountant's statement or report to reflect the bidder's true financial condition at the time such qualified statement or report is submitted to the Owner.

Unless otherwise specified, a bidder may submit evidence that they are prequalified with the State Highway Division and are on the current "bidder's list" of the state in which the proposed work is located. Evidence of State Highway Division prequalification may be submitted as evidence of financial responsibility in lieu of the certified statements or reports specified above.

20-03 Contents of proposal forms. The Owner's proposal forms state the location and description of the proposed construction; the place, date, and time of opening of the proposals; and the estimated quantities of the various items of work to be performed and materials to be furnished for which unit bid prices are asked. The proposal form states the time in which the work must be completed, and the amount of the proposal guaranty that must accompany the proposal. The Owner will accept only those Proposals properly executed on physical forms or electronic forms provided by the Owner. Bidder actions that may cause the Owner to deem a proposal irregular are given in paragraph 20-09 *Irregular proposals*.

Mobilization is limited to 10 percent of the total project cost.

A prebid conference is optional on this project to discuss as a minimum, the following items: material requirements; submittals; Quality Control/Quality Assurance requirements; the construction safety and phasing plan including airport access and staging areas; and unique airfield paving construction requirements.

20-04 Issuance of proposal forms. The Owner reserves the right to refuse to issue a proposal form to a prospective bidder if the bidder is in default for any of the following reasons:

a. Failure to comply with any prequalification regulations of the Owner, if such regulations are cited, or otherwise included, in the proposal as a requirement for bidding.

b. Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts in force with the Owner at the time the Owner issues the proposal to a prospective bidder.

c. Documented record of Contractor default under previous contracts with the Owner.

d. Documented record of unsatisfactory work on previous contracts with the Owner.

20-05 Interpretation of estimated proposal quantities. An estimate of quantities of work to be done and materials to be furnished under these specifications is given in the proposal. It is the result of careful calculations and is believed to be correct. It is given only as a basis for comparison of proposals and the award of the contract. The Owner does not expressly, or by implication, agree that the actual quantities involved will correspond exactly therewith; nor shall the bidder plead misunderstanding or deception because of such estimates of quantities, or of the character, location, or other conditions pertaining to the work. Payment to the Contractor will be made only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications. It is understood that the quantities may be increased or decreased as provided in the Section 40, paragraph 40-02, Alteration of Work and Quantities*,* without in any way invalidating the unit bid prices.

20-06 Examination of plans, specifications, and site. The bidder is expected to carefully examine the site of the proposed work, the proposal, plans, specifications, and contract forms. Bidders shall satisfy themselves to the character, quality, and quantities of work to be performed, materials to be furnished, and to the requirements of the proposed contract. The submission of a proposal shall be prima facie evidence that the bidder has made such examination and is satisfied to the conditions to be encountered in performing the work and the requirements of the proposed contract, plans, and specifications.

Boring logs and other records of subsurface investigations and tests are available for inspection of bidders. It is understood and agreed that such subsurface information, whether included in the plans, specifications, or otherwise made available to the bidder, was obtained and is intended for the Owner's design and estimating purposes only. Such information has been made available for the convenience of all bidders. It is further understood and agreed that each bidder is solely responsible for all assumptions, deductions, or conclusions which the bidder may make or obtain from their own examination of the boring logs and other records of subsurface investigations and tests that are furnished by the Owner.

20-07 Preparation of proposal. The bidder shall submit their proposal on the forms furnished by the Owner. All blank spaces in the proposal forms, unless explicitly stated otherwise, must be correctly filled in where indicated for each and every item for which a quantity is given. The bidder shall state the price (written in ink or typed) both in words and numerals which they propose for each pay item furnished in the proposal. In case of conflict between words and numerals, the words, unless obviously incorrect, shall govern.

The bidder shall correctly sign the proposal in ink. If the proposal is made by an individual, their name and post office address must be shown. If made by a partnership, the name and post office address of each member of the partnership must be shown. If made by a corporation, the person signing the proposal shall give the name of the state where the corporation was chartered and the name, titles, and business address of the president, secretary, and the treasurer. Anyone signing a proposal as an agent shall file evidence of their authority to do so and that the signature is binding upon the firm or corporation.

20-08 Responsive and responsible bidder. A responsive bid conforms to all significant terms and conditions contained in the Owner's invitation for bid. It is the Owner's responsibility to decide if the exceptions taken by a bidder to the solicitation are material or not and the extent of deviation it is willing to accept.

A responsible bidder has the ability to perform successfully under the terms and conditions of a proposed procurement, as defined in 2 CFR § 200.318(h). This includes such matters as Contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.

20-09 Irregular proposals. Proposals shall be considered irregular for the following reasons:

a. If the proposal is on a form other than that furnished by the Owner, or if the Owner's form is altered, or if any part of the proposal form is detached.

b. If there are unauthorized additions, conditional or alternate pay items, or irregularities of any kind that make the proposal incomplete, indefinite, or otherwise ambiguous.

c. If the proposal does not contain a unit price for each pay item listed in the proposal, except in the case of authorized alternate pay items, for which the bidder is not required to furnish a unit price.

d. If the proposal contains unit prices that are obviously unbalanced.

e. If the proposal is not accompanied by the proposal guaranty specified by the Owner.

f. If the applicable Disadvantaged Business Enterprise information is incomplete.

The Owner reserves the right to reject any irregular proposal and the right to waive technicalities if such waiver is in the best interest of the Owner and conforms to local laws and ordinances pertaining to the letting of construction contracts.

20-10 Bid guarantee. Each separate proposal shall be accompanied by a bid bond, certified check, or other specified acceptable collateral, in the amount specified in the proposal form. Such bond, check, or collateral, shall be made payable to the Owner.

20-11 Delivery of proposal. Each proposal submitted shall be placed in a sealed envelope plainly marked with the project number, location of airport, and name and business address of the bidder on the outside. When sent by mail, preferably registered, the sealed proposal, marked as indicated above, should be enclosed in an additional envelope. No proposal will be considered unless received at the place specified in the advertisement or as modified by Addendum before the time specified for opening all bids. Proposals received after the bid opening time shall be returned to the bidder unopened.

20-12 Withdrawal or revision of proposals. A bidder may withdraw or revise (by withdrawal of one proposal and submission of another) a proposal provided that the bidder's request for withdrawal is received by the Owner in writing before the time specified for opening bids. Revised proposals must be received at the place specified in the advertisement before the time specified for opening all bids.

20-13 Public opening of proposals. Proposals shall be opened, and read, publicly at the time and place specified in the advertisement. Bidders, their authorized agents, and other interested persons are invited to attend. Proposals that have been withdrawn (by written or telegraphic request) or received after the time specified for opening bids shall be returned to the bidder unopened.

20-14 Disqualification of bidders. A bidder shall be considered disqualified for any of the following reasons:

a. Submitting more than one proposal from the same partnership, firm, or corporation under the same or different name.

b. Evidence of collusion among bidders. Bidders participating in such collusion shall be disqualified as bidders for any future work of the Owner until any such participating bidder has been reinstated by the Owner as a qualified bidder.

c. If the bidder is considered to be in "default" for any reason specified in paragraph 20-04, *Issuance of Proposal Forms,* of this section.

20-15 Discrepancies and Omissions. A Bidder who discovers discrepancies or omissions with the project bid documents shall immediately notify the Owner's Engineer of the matter. A bidder that has doubt as to the true meaning of a project requirement may submit to the Owner's Engineer a written request for interpretation no later than 7 days prior to bid opening.

Any interpretation of the project bid documents by the Owner's Engineer will be by written addendum issued by the Owner. The Owner will not consider any instructions, clarifications or interpretations of the bidding documents in any manner other than written addendum.

Section 30 Award and Execution of Contract

30-01 Consideration of proposals. After the proposals are publicly opened and read, they will be compared on the basis of the summation of the products obtained by multiplying the estimated quantities shown in the proposal by the unit bid prices. If a bidder's proposal contains a discrepancy between unit bid prices written in words and unit bid prices written in numbers, the unit bid price written in words shall govern.

Until the award of a contract is made, the Owner reserves the right to reject a bidder's proposal for any of the following reasons:

a. If the proposal is irregular as specified in Section 20, paragraph 20-09, *Irregular Proposals*.

b. If the bidder is disqualified for any of the reasons specified Section 20, paragraph 20-14, *Disqualification of Bidders*.

In addition, until the award of a contract is made, the Owner reserves the right to reject any or all proposals, waive technicalities, if such waiver is in the best interest of the Owner and is in conformance with applicable state and local laws or regulations pertaining to the letting of construction contracts; advertise for new proposals; or proceed with the work otherwise. All such actions shall promote the Owner's best interests.

30-02 Award of contract. The award of a contract, if it is to be awarded, shall be made within 120 calendar days of the date specified for publicly opening proposals, unless otherwise specified herein.

If the Owner elects to proceed with an award of contract, the Owner will make award to the responsible bidder whose bid, conforming with all the material terms and conditions of the bid documents, is the lowest in price.

30-03 Cancellation of award. The Owner reserves the right to cancel the award without liability to the bidder, except return of proposal guaranty, at any time before a contract has been fully executed by all parties and is approved by the Owner in accordance with paragraph 30-07 *Approval of Contract*.

30-04 Return of proposal guaranty. All proposal guaranties, except those of the two lowest bidders, will be returned immediately after the Owner has made a comparison of bids as specified in the paragraph 30-01, *Consideration of Proposals.* Proposal guaranties of the two lowest bidders will be retained by the Owner until such time as an award is made, at which time, the unsuccessful bidder's proposal guaranty will be returned. The successful bidder's proposal guaranty will be returned as soon as the Owner receives the contract bonds as specified in paragraph 30-05, *Requirements of Contract Bonds.*

30-05 Requirements of contract bonds. At the time of the execution of the contract, the successful bidder shall furnish the Owner a surety bond or bonds that have been fully executed by the bidder and the surety guaranteeing the performance of the work and the payment of all legal debts that may be incurred by reason of the Contractor's performance of the work. The surety and the form of the bond or bonds shall be acceptable to the Owner. Unless otherwise specified in this subsection, the surety bond or bonds shall be in a sum equal to the full amount of the contract.

30-06 Execution of contract. The successful bidder shall sign (execute) the necessary agreements for entering into the contract and return the signed contract to the Owner, along with the fully executed surety bond or bonds specified in paragraph 30-05, *Requirements of Contract Bonds,* of this section, within 15 calendar days from the date mailed or otherwise delivered to the successful bidder.

30-07 Approval of contract. Upon receipt of the contract and contract bond or bonds that have been executed by the successful bidder, the Owner shall complete the execution of the contract in accordance

with local laws or ordinances, and return the fully executed contract to the Contractor. Delivery of the fully executed contract to the Contractor shall constitute the Owner's approval to be bound by the successful bidder's proposal and the terms of the contract.

30-08 Failure to execute contract. Failure of the successful bidder to execute the contract and furnish an acceptable surety bond or bonds within the period specified in paragraph 30-06, *Execution of Contract,* of this section shall be just cause for cancellation of the award and forfeiture of the proposal guaranty, not as a penalty, but as liquidated damages to the Owner.

Section 40 Scope of Work

40-01 Intent of contract. The intent of the contract is to provide for construction and completion, in every detail, of the work described. It is further intended that the Contractor shall furnish all labor, materials, equipment, tools, transportation, and supplies required to complete the work in accordance with the plans, specifications, and terms of the contract.

40-02 Alteration of work and quantities. The Owner reserves the right to make such changes in quantities and work as may be necessary or desirable to complete, in a satisfactory manner, the original intended work. Unless otherwise specified in the Contract, the Owner's Engineer or RPR shall be and is hereby authorized to make, in writing, such in-scope alterations in the work and variation of quantities as may be necessary to complete the work, provided such action does not represent a significant change in the character of the work.

For purpose of this section, a significant change in character of work means: any change that is outside the current contract scope of work; any change (increase or decrease) in the total contract cost by more than 25%; or any change in the total cost of a major contract item by more than 25%.

Work alterations and quantity variances that do not meet the definition of significant change in character of work shall not invalidate the contract nor release the surety. Contractor agrees to accept payment for such work alterations and quantity variances in accordance with Section 90, paragraph 90-03, *Compensation for Altered Quantities*.

Should the value of altered work or quantity variance meet the criteria for significant change in character of work, such altered work and quantity variance shall be covered by a supplemental agreement. Supplemental agreements shall also require consent of the Contractor's surety and separate performance and payment bonds. If the Owner and the Contractor are unable to agree on a unit adjustment for any contract item that requires a supplemental agreement, the Owner reserves the right to terminate the contract with respect to the item and make other arrangements for its completion.

40-03 Omitted items. The Owner, the Owner's Engineer or the RPR may provide written notice to the Contractor to omit from the work any contract item that does not meet the definition of major contract item. Major contract items may be omitted by a supplemental agreement. Such omission of contract items shall not invalidate any other contract provision or requirement.

Should a contract item be omitted or otherwise ordered to be non-performed, the Contractor shall be paid for all work performed toward completion of such item prior to the date of the order to omit such item. Payment for work performed shall be in accordance with Section 90, paragraph 90-04, *Payment for Omitted Items*.

40-04 Extra work. Should acceptable completion of the contract require the Contractor to perform an item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, Owner may issue a Change Order to cover the necessary extra work. Change orders for extra work shall contain agreed unit prices for performing the change order work in accordance with the requirements specified in the order, and shall contain any adjustment to the contract time that, in the RPR's opinion, is necessary for completion of the extra work.

When determined by the RPR to be in the Owner's best interest, the RPR may order the Contractor to proceed with extra work as provided in Section 90, paragraph 90-05, *Payment for Extra Work*. Extra work that is necessary for acceptable completion of the project, but is not within the general scope of the work

covered by the original contract shall be covered by a supplemental agreement as defined in Section 10, paragraph 10-59, *Supplemental Agreement*.

If extra work is essential to maintaining the project critical path, RPR may order the Contractor to commence the extra work under a Time and Material contract method. Once sufficient detail is available to establish the level of effort necessary for the extra work, the Owner shall initiate a change order or supplemental agreement to cover the extra work.

Any claim for payment of extra work that is not covered by written agreement (change order or supplemental agreement) shall be rejected by the Owner.

40-05 Maintenance of traffic. It is the explicit intention of the contract that the safety of aircraft, as well as the Contractor's equipment and personnel, is the most important consideration. The Contractor shall maintain traffic in the manner detailed in the Construction Safety and Phasing Plan (CSPP).

a. It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas (AOAs) of the airport with respect to their own operations and the operations of all subcontractors as specified in Section 80, paragraph 80-04, *Limitation of Operations*. It is further understood and agreed that the Contractor shall provide for the uninterrupted operation of visual and electronic signals (including power supplies thereto) used in the guidance of aircraft while operating to, from, and upon the airport as specified in Section 70, paragraph 70-15, *Contractor's Responsibility for Utility Service and Facilities of Others*.

b. With respect to their own operations and the operations of all subcontractors, the Contractor shall provide marking, lighting, and other acceptable means of identifying personnel, equipment, vehicles, storage areas, and any work area or condition that may be hazardous to the operation of aircraft, fire-rescue equipment, or maintenance vehicles at the airport in accordance with the construction safety and phasing plan (CSPP) and the safety plan compliance document (SPCD).

c. When the contract requires the maintenance of an existing road, street, or highway during the Contractor's performance of work that is otherwise provided for in the contract, plans, and specifications, the Contractor shall keep the road, street, or highway open to all traffic and shall provide maintenance as may be required to accommodate traffic. The Contractor, at their expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel. The Contractor shall furnish, erect, and maintain barricades, warning signs, flag person, and other traffic control devices in reasonable conformity with the Manual on Uniform Traffic Control Devices (MUTCD) (http://mutcd.fhwa.dot.gov/), unless otherwise specified. The Contractor shall also construct and maintain in a safe condition any temporary connections necessary for ingress to and egress from abutting property or intersecting roads, streets or highways. Unless otherwise specified herein, the Contractor will not be required to furnish snow removal for such existing road, street, or highway.

40-06 Removal of existing structures. All existing structures encountered within the established lines, grades, or grading sections shall be removed by the Contractor, unless such existing structures are otherwise specified to be relocated, adjusted up or down, salvaged, abandoned in place, reused in the work or to remain in place. The cost of removing such existing structures shall not be measured or paid for directly, but shall be included in the various contract items.

Should the Contractor encounter an existing structure (above or below ground) in the work for which the disposition is not indicated on the plans, the Resident Project Representative (RPR) shall be notified prior to disturbing such structure. The disposition of existing structures so encountered shall be immediately determined by the RPR in accordance with the provisions of the contract.

Except as provided in Section 40, paragraph 40-07, *Rights in and Use of Materials Found in the Work*, it is intended that all existing materials or structures that may be encountered (within the lines, grades, or

grading sections established for completion of the work) shall be used in the work as otherwise provided for in the contract and shall remain the property of the Owner when so used in the work.

40-07 Rights in and use of materials found in the work. Should the Contractor encounter any material such as (but not restricted to) sand, stone, gravel, slag, or concrete slabs within the established lines, grades, or grading sections, the use of which is intended by the terms of the contract to be embankment, the Contractor may at their own option either:

a. Use such material in another contract item, providing such use is approved by the RPR and is in conformance with the contract specifications applicable to such use; or,

b. Remove such material from the site, upon written approval of the RPR; or

c. Use such material for the Contractor's own temporary construction on site; or,

d. Use such material as intended by the terms of the contract.

Should the Contractor wish to exercise option a., b., or c., the Contractor shall request the RPR's approval in advance of such use.

Should the RPR approve the Contractor's request to exercise option a., b., or c., the Contractor shall be paid for the excavation or removal of such material at the applicable contract price. The Contractor shall replace, at their expense, such removed or excavated material with an agreed equal volume of material that is acceptable for use in constructing embankment, backfills, or otherwise to the extent that such replacement material is needed to complete the contract work. The Contractor shall not be charged for use of such material used in the work or removed from the site.

Should the RPR approve the Contractor's exercise of option a., the Contractor shall be paid, at the applicable contract price, for furnishing and installing such material in accordance with requirements of the contract item in which the material is used.

It is understood and agreed that the Contractor shall make no claim for delays by reason of their own exercise of option a., b., or c.

The Contractor shall not excavate, remove, or otherwise disturb any material, structure, or part of a structure which is located outside the lines, grades, or grading sections established for the work, except where such excavation or removal is provided for in the contract, plans, or specifications.

40-08 Final cleanup. Upon completion of the work and before acceptance and final payment will be made, the Contractor shall remove from the site all machinery, equipment, surplus and discarded materials, rubbish, temporary structures, and stumps or portions of trees. The Contractor shall cut all brush and woods within the limits indicated and shall leave the site in a neat and presentable condition. Material cleared from the site and deposited on adjacent property will not be considered as having been disposed of satisfactorily, unless the Contractor has obtained the written permission of the property Owner.

Section 50 Control of Work

50-01 Authority of the Resident Project Representative (RPR). The RPR has final authority regarding the interpretation of project specification requirements. The RPR shall determine acceptability of the quality of materials furnished, method of performance of work performed, and the manner and rate of performance of the work. The RPR does not have the authority to accept work that does not conform to specification requirements.

50-02 Conformity with plans and specifications. All work and all materials furnished shall be in reasonably close conformity with the lines, grades, grading sections, cross-sections, dimensions, material requirements, and testing requirements that are specified (including specified tolerances) in the contract, plans, or specifications.

If the RPR finds the materials furnished, work performed, or the finished product not within reasonably close conformity with the plans and specifications, but that the portion of the work affected will, in their opinion, result in a finished product having a level of safety, economy, durability, and workmanship acceptable to the Owner, the RPR will advise the Owner of their determination that the affected work be accepted and remain in place. The RPR will document the determination and recommend to the Owner a basis of acceptance that will provide for an adjustment in the contract price for the affected portion of the work. Changes in the contract price must be covered by contract change order or supplemental agreement as applicable.

If the RPR finds the materials furnished, work performed, or the finished product are not in reasonably close conformity with the plans and specifications and have resulted in an unacceptable finished product, the affected work or materials shall be removed and replaced or otherwise corrected by and at the expense of the Contractor in accordance with the RPR's written orders.

The term "reasonably close conformity" shall not be construed as waiving the Contractor's responsibility to complete the work in accordance with the contract, plans, and specifications. The term shall not be construed as waiving the RPR's responsibility to insist on strict compliance with the requirements of the contract, plans, and specifications during the Contractor's execution of the work, when, in the RPR's opinion, such compliance is essential to provide an acceptable finished portion of the work.

The term "reasonably close conformity" is also intended to provide the RPR with the authority, after consultation with the Sponsor and FAA, to use sound engineering judgment in their determinations to accept work that is not in strict conformity, but will provide a finished product equal to or better than that required by the requirements of the contract, plans and specifications.

The RPR will not be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction or the safety precautions incident thereto.

50-03 Coordination of contract, plans, and specifications. The contract, plans, specifications, and all referenced standards cited are essential parts of the contract requirements. If electronic files are provided and used on the project and there is a conflict between the electronic files and hard copy plans, the hard copy plans shall govern. A requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, calculated dimensions will govern over scaled dimensions; contract technical specifications shall govern over contract general provisions, plans, cited standards for materials or testing, and cited advisory circulars (ACs); contract general provisions shall govern over plans, cited standards for materials or testing, and cited ACs; plans shall govern over cited standards for materials or testing and cited ACs. If

any paragraphs contained in the Special Provisions conflict with General Provisions or Technical Specifications, the Special Provisions shall govern.

From time to time, discrepancies within cited testing standards occur due to the timing of the change, edits, and/or replacement of the standards. If the Contractor discovers any apparent discrepancy within standard test methods, the Contractor shall immediately ask the RPR for an interpretation and decision, and such decision shall be final.

The Contractor shall not take advantage of any apparent error or omission on the plans or specifications. In the event the Contractor discovers any apparent error or discrepancy, Contractor shall immediately notify the Owner or the designated representative in writing requesting their written interpretation and decision.

50-04 List of Special Provisions. Not used.

50-05 Cooperation of Contractor. The Contractor shall be supplied with five hard copies or an electronic PDF of the plans and specifications. The Contractor shall have available on the construction site at all times one hardcopy each of the plans and specifications. Additional hard copies of plans and specifications may be obtained by the Contractor for the cost of reproduction.

The Contractor shall give constant attention to the work to facilitate the progress thereof, and shall cooperate with the RPR and their inspectors and with other Contractors in every way possible. The Contractor shall have a competent superintendent on the work at all times who is fully authorized as their agent on the work. The superintendent shall be capable of reading and thoroughly understanding the plans and specifications and shall receive and fulfill instructions from the RPR or their authorized representative.

50-06 Cooperation between Contractors. The Owner reserves the right to contract for and perform other or additional work on or near the work covered by this contract.

When separate contracts are let within the limits of any one project, each Contractor shall conduct the work not to interfere with or hinder the progress of completion of the work being performed by other Contractors. Contractors working on the same project shall cooperate with each other as directed.

Each Contractor involved shall assume all liability, financial or otherwise, in connection with their own contract and shall protect and hold harmless the Owner from any and all damages or claims that may arise because of inconvenience, delays, or loss experienced because of the presence and operations of other Contractors working within the limits of the same project.

The Contractor shall arrange their work and shall place and dispose of the materials being used to not interfere with the operations of the other Contractors within the limits of the same project. The Contractor shall join their work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

50-07 Construction layout and stakes. The Engineer/RPR shall establish necessary horizontal and vertical control. The establishment of Survey Control and/or reestablishment of survey control shall be by a State Licensed Land Surveyor. Contractor is responsible for preserving integrity of horizontal and vertical controls established by Engineer/RPR. In case of negligence on the part of the Contractor or their employees, resulting in the destruction of any horizontal and vertical control, the resulting costs will be deducted as a liquidated damage against the Contractor.

Prior to the start of construction, the Contractor will check all control points for horizontal and vertical accuracy and certify in writing to the RPR that the Contractor concurs with survey control established for the project. All lines, grades and measurements from control points necessary for the proper execution and control of the work on this project will be provided to the RPR. The Contractor is responsible to establish all layout required for the construction of the project.

Copies of survey notes will be provided to the RPR for each area of construction and for each placement of material as specified to allow the RPR to make periodic checks for conformance with plan grades, alignments and grade tolerances required by the applicable material specifications. Surveys will be provided to the RPR prior to commencing work items that cover or disturb the survey staking. Survey(s) and notes shall be provided in the following format(s): electronic delivery accessible in CAD software of surveys in addition to hard copy

Laser, GPS, String line, or other automatic control shall be checked with temporary control as necessary. In the case of error, on the part of the Contractor, their surveyor, employees or subcontractors, resulting in established grades, alignment or grade tolerances that do not concur with those specified or shown on the plans, the Contractor is solely responsible for correction, removal, replacement and all associated costs at no additional cost to the Owner.

No direct payment will be made, unless otherwise specified in contract documents, for this labor, materials, or other expenses. The cost shall be included in the price of the bid for the various items of the Contract.

50-08 Authority and duties of Quality Assurance (QA) inspectors. QA inspectors shall be authorized to inspect all work done and all material furnished. Such QA inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. QA inspectors are not authorized to revoke, alter, or waive any provision of the contract. QA inspectors are not authorized to issue instructions contrary to the plans and specifications or to act as foreman for the Contractor.

QA Inspectors are authorized to notify the Contractor or their representatives of any failure of the work or materials to conform to the requirements of the contract, plans, or specifications and to reject such nonconforming materials in question until such issues can be referred to the RPR for a decision.

50-09 Inspection of the work. All materials and each part or detail of the work shall be subject to inspection. The RPR shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

If the RPR requests it, the Contractor, at any time before acceptance of the work, shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the specifications. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as extra work; but should the work so exposed or examined prove unacceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be at the Contractor's expense.

Provide advance written notice to the RPR of work the Contractor plans to perform each week and each day. Any work done or materials used without written notice and allowing opportunity for inspection by the RPR may be ordered removed and replaced at the Contractor's expense.

Should the contract work include relocation, adjustment, or any other modification to existing facilities, not the property of the (contract) Owner, authorized representatives of the Owners of such facilities shall have the right to inspect such work. Such inspection shall in no sense make any facility owner a party to the contract, and shall in no way interfere with the rights of the parties to this contract.

50-10 Removal of unacceptable and unauthorized work. All work that does not conform to the requirements of the contract, plans, and specifications will be considered unacceptable, unless otherwise determined acceptable by the RPR as provided in paragraph 50-02, *Conformity with Plans and Specifications*.

Unacceptable work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause found to exist prior to the final acceptance of the work, shall be removed

immediately and replaced in an acceptable manner in accordance with the provisions of Section 70, paragraph 70-14, *Contractor's Responsibility for Work*.

No removal work made under provision of this paragraph shall be done without lines and grades having been established by the RPR. Work done contrary to the instructions of the RPR, work done beyond the lines shown on the plans or as established by the RPR, except as herein specified, or any extra work done without authority, will be considered as unauthorized and will not be paid for under the provisions of the contract. Work so done may be ordered removed or replaced at the Contractor's expense.

Upon failure on the part of the Contractor to comply with any order of the RPR made under the provisions of this subsection, the RPR will have authority to cause unacceptable work to be remedied or removed and replaced; and unauthorized work to be removed and recover the resulting costs as a liquidated damage against the Contractor.

50-11 Load restrictions. The Contractor shall comply with all legal load restrictions in the hauling of materials on public roads beyond the limits of the work. A special permit will not relieve the Contractor of liability for damage that may result from the moving of material or equipment.

The operation of equipment of such weight or so loaded as to cause damage to structures or to any other type of construction will not be permitted. Hauling of materials over the base course or surface course under construction shall be limited as directed. No loads will be permitted on a concrete pavement, base, or structure before the expiration of the curing period. The Contractor, at their own expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel.

50-12 Maintenance during construction. The Contractor shall maintain the work during construction and until the work is accepted. Maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and forces so that the work is maintained in satisfactory condition at all times.

In the case of a contract for the placing of a course upon a course or subgrade previously constructed, the Contractor shall maintain the previous course or subgrade during all construction operations.

All costs of maintenance work during construction and before the project is accepted shall be included in the unit prices bid on the various contract items, and the Contractor will not be paid an additional amount for such work.

50-13 Failure to maintain the work. Should the Contractor at any time fail to maintain the work as provided in paragraph 50-12, *Maintenance during Construction*, the RPR shall immediately notify the Contractor of such noncompliance. Such notification shall specify a reasonable time within which the Contractor shall be required to remedy such unsatisfactory maintenance condition. The time specified will give due consideration to the exigency that exists.

Should the Contractor fail to respond to the RPR's notification, the Owner may suspend any work necessary for the Owner to correct such unsatisfactory maintenance condition, depending on the exigency that exists. Any maintenance cost incurred by the Owner, shall be recovered as a liquidated damage against the Contractor.

50-14 Partial acceptance. If at any time during the execution of the project the Contractor substantially completes a usable unit or portion of the work, the occupancy of which will benefit the Owner, the Contractor may request the RPR to make final inspection of that unit. If the RPR finds upon inspection that the unit has been satisfactorily completed in compliance with the contract, the RPR may accept it as being complete, and the Contractor may be relieved of further responsibility for that unit. Such partial acceptance and beneficial occupancy by the Owner shall not void or alter any provision of the contract.

50-15 Final acceptance. Upon due notice from the Contractor of presumptive completion of the entire project, the RPR and Owner will make an inspection. If all construction provided for and contemplated by the contract is found to be complete in accordance with the contract, plans, and specifications, such inspection shall constitute the final inspection. The RPR shall notify the Contractor in writing of final acceptance as of the date of the final inspection.

If, however, the inspection discloses any work, in whole or in part, as being unsatisfactory, the RPR will notify the Contractor and the Contractor shall correct the unsatisfactory work. Upon correction of the work, another inspection will be made which shall constitute the final inspection, provided the work has been satisfactorily completed. In such event, the RPR will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

50-16 Claims for adjustment and disputes. If for any reason the Contractor deems that additional compensation is due for work or materials not clearly provided for in the contract, plans, or specifications or previously authorized as extra work, the Contractor shall notify the RPR in writing of their intention to claim such additional compensation before the Contractor begins the work on which the Contractor bases the claim. If such notification is not given or the RPR is not afforded proper opportunity by the Contractor for keeping strict account of actual cost as required, then the Contractor hereby agrees to waive any claim for such additional compensation. Such notice by the Contractor and the fact that the RPR has kept account of the cost of the work shall not in any way be construed as proving or substantiating the validity of the claim. When the work on which the claim for additional compensation is based has been completed, the Contractor shall, within 10 calendar days, submit a written claim to the RPR who will present it to the Owner for consideration in accordance with local laws or ordinances.

Nothing in this subsection shall be construed as a waiver of the Contractor's right to dispute final payment based on differences in measurements or computations.

50-17 Value Engineering Cost Proposal.

The provisions of this paragraph will apply only to contracts awarded to the lowest bidder pursuant to competitive bidding.

On projects with original contract amounts in excess of $100,000, the Contractor may submit to the RPR, in writing, proposals for modifying the plans, specifications or other requirements of the contract for the sole purpose of reducing the cost of construction. The value engineering cost proposal shall not impair, in any manner, the essential functions or characteristics of the project, including but not limited to service life, economy of operation, ease of maintenance, desired appearance, design and safety standards. This provision shall not apply unless the proposal submitted is specifically identified by the Contractor as being presented for consideration as a value engineering proposal.

Not eligible for value engineering cost proposals are changes in the basic design of a pavement type, runway and taxiway lighting, visual aids, hydraulic capacity of drainage facilities, or changes in grade or alignment that reduce the geometric standards of the project.

As a minimum, the following information shall be submitted by the Contractor with each proposal:

a. A description of both existing contract requirements for performing the work and the proposed changes, with a discussion of the comparative advantages and disadvantages of each.

b. An itemization of the contract requirements that must be changed if the proposal is adopted.

c. A detailed estimate of the cost of performing the work under the existing contract and under the proposed changes.

d. A statement of the time by which a change order adopting the proposal must be issued.

e. A statement of the effect adoption of the proposal will have on the time for completion of the contract.

f. The contract items of work affected by the proposed changes, including any quantity variation attributable to them.

The Contractor may withdraw, in whole or in part, any value engineering cost proposal not accepted by the RPR, within the period specified in the proposal. The provisions of this subsection shall not be construed to require the RPR to consider any value engineering cost proposal that may be submitted.

The Contractor shall continue to perform the work in accordance with the requirements of the contract until a change order incorporating the value engineering cost proposal has been issued. If a change order has not been issued by the date upon which the Contractor's value engineering cost proposal specifies that a decision should be made, or such other date as the Contractor may subsequently have requested in writing, such value engineering cost proposal shall be deemed rejected.

The RPR shall be the sole judge of the acceptability of a value engineering cost proposal and of the estimated net savings from the adoption of all or any part of such proposal. In determining the estimated net savings, the RPR may disregard the contract bid prices if, in the RPR's judgment such prices do not represent a fair measure of the value of the work to be performed or deleted.

The Owner may require the Contractor to share in the Owner's costs of investigating a value engineering cost proposal submitted by the Contractor as a condition of considering such proposal. Where such a condition is imposed, the Contractor shall acknowledge acceptance of it in writing. Such acceptance shall constitute full authority for the Owner to deduct the cost of investigating a value engineering cost proposal from amounts payable to the Contractor under the contract.

If the Contractor's value engineering cost proposal is accepted in whole or in part, such acceptance will be by a contract change order that shall specifically state that it is executed pursuant to this paragraph. Such change order shall incorporate the changes in the plans and specifications which are necessary to permit the value engineering cost proposal or such part of it as has been accepted and shall include any conditions upon which the RPR's approval is based. The change order shall also set forth the estimated net savings attributable to the value engineering cost proposal. The net savings shall be determined as the difference in costs between the original contract costs for the involved work items and the costs occurring as a result of the proposed change. The change order shall also establish the net savings agreed upon and shall provide for adjustment in the contract price that will divide the net savings equally between the Contractor and the Owner.

The Contractor's 50% share of the net savings shall constitute full compensation to the Contractor for the value engineering cost proposal and the performance of the work.

Acceptance of the value engineering cost proposal and performance of the work shall not extend the time of completion of the contract unless specifically provided for in the contract change order.

Section 60 Control of Materials

60-01 Source of supply and quality requirements. The materials used in the work shall conform to the requirements of the contract, plans, and specifications. Unless otherwise specified, such materials that are manufactured or processed shall be new (as compared to used or reprocessed).

In order to expedite the inspection and testing of materials, the Contractor shall furnish documentation to the RPR as to the origin, composition, and manufacture of all materials to be used in the work. Documentation shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials.

At the RPR's option, materials may be approved at the source of supply before delivery. If it is found after trial that sources of supply for previously approved materials do not produce specified products, the Contractor shall furnish materials from other sources.

The Contractor shall furnish airport lighting equipment that meets the requirements of the specifications; and is listed in AC 150/5345-53, *Airport Lighting Equipment Certification Program* and *Addendum*, that is in effect on the date of advertisement.

60-02 Samples, tests, and cited specifications. All materials used in the work shall be inspected, tested, and approved by the RPR before incorporation in the work unless otherwise designated. Any work in which untested materials are used without approval or written permission of the RPR shall be performed at the Contractor's risk. Materials found to be unacceptable and unauthorized will not be paid for and, if directed by the RPR, shall be removed at the Contractor's expense.

Unless otherwise designated, quality assurance tests will be made by and at the expense of the Owner in accordance with the cited standard methods of ASTM, American Association of State Highway and Transportation Officials (AASHTO), federal specifications, Commercial Item Descriptions, and all other cited methods, which are current on the date of advertisement for bids.

The testing organizations performing on-site quality assurance field tests shall have copies of all referenced standards on the construction site for use by all technicians and other personnel. Unless otherwise designated, samples for quality assurance will be taken by a qualified representative of the RPR. All materials being used are subject to inspection, test, or rejection at any time prior to or during incorporation into the work. Copies of all tests will be furnished to the Contractor's representative at their request after review and approval of the RPR.

A copy of all Contractor QC test data shall be provided to the RPR daily, along with printed reports, in an approved electronic format, on a weekly basis. After completion of the project, and prior to final payment, the Contractor shall submit a final report to the RPR showing all test data reports, plus an analysis of all results showing ranges, averages, and corrective action taken on all failing tests.

The Contractor shall employ a Quality Control (QC) testing organization to perform all Contractor required QC tests in accordance with Item C-100 Contractor Quality Control Program (CQCP).

60-03 Certification of compliance/analysis (COC/COA). The RPR may permit the use, prior to sampling and testing, of certain materials or assemblies when accompanied by manufacturer's COC stating that such materials or assemblies fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer. Each lot of such materials or assemblies delivered to the

work must be accompanied by a certificate of compliance in which the lot is clearly identified. The COA is the manufacturer's COC and includes all applicable test results.

Materials or assemblies used on the basis of certificates of compliance may be sampled and tested at any time and if found not to be in conformity with contract requirements will be subject to rejection whether in place or not.

The form and distribution of certificates of compliance shall be as approved by the RPR.

When a material or assembly is specified by "brand name or equal" and the Contractor elects to furnish the specified "or equal," the Contractor shall be required to furnish the manufacturer's certificate of compliance for each lot of such material or assembly delivered to the work. Such certificate of compliance shall clearly identify each lot delivered and shall certify as to:

a. Conformance to the specified performance, testing, quality or dimensional requirements; and,

b. Suitability of the material or assembly for the use intended in the contract work.

The RPR shall be the sole judge as to whether the proposed "or equal" is suitable for use in the work.

The RPR reserves the right to refuse permission for use of materials or assemblies on the basis of certificates of compliance.

60-04 Plant inspection. The RPR or their authorized representative may inspect, at its source, any specified material or assembly to be used in the work. Manufacturing plants may be inspected from time to time for the purpose of determining compliance with specified manufacturing methods or materials to be used in the work and to obtain samples required for acceptance of the material or assembly.

Should the RPR conduct plant inspections, the following conditions shall exist:

a. The RPR shall have the cooperation and assistance of the Contractor and the producer with whom the Contractor has contracted for materials.

b. The RPR shall have full entry at all reasonable times to such parts of the plant that concern the manufacture or production of the materials being furnished.

c. If required by the RPR, the Contractor shall arrange for adequate office or working space that may be reasonably needed for conducting plant inspections. Place office or working space in a convenient location with respect to the plant.

It is understood and agreed that the Owner shall have the right to retest any material that has been tested and approved at the source of supply after it has been delivered to the site. The RPR shall have the right to reject only material which, when retested, does not meet the requirements of the contract, plans, or specifications.

60-05 Engineer/ Resident Project Representative (RPR) field office. The Contractor shall provide dedicated space for the use of the engineer, RPR, and inspectors, as a field office for the duration of the project. This space shall be located conveniently near the construction and shall be separate from any space used by the Contractor. This facility shall be an approved weatherproof building meeting the current State Highway Specifications (for example, Class 1 Field Office or Type C Structure). The Contractor shall be responsible for payment of a high speed internet service. The Contractor shall furnish a photocopy and scanning machine with a stream feeder capable of handling 11x17 paper, 2 desks and chairs, table, water, sanitary facilities, heat, air conditioning, and electricity. No direct payment will be made for this building or labor, materials, ground rental, or other expense in connection therewith. The cost hereof shall be included in the price bid for various items of the Contract. The Contractor and his/her superintendent shall provide reasonable facilities to enable to the Engineer to inspect the workmanship and materials entering into the work.

60-06 Storage of materials. Materials shall be stored to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may again be inspected prior to their use in the work. Stored materials shall be located to facilitate their prompt inspection. The Contractor shall coordinate the storage of all materials with the RPR. Materials to be stored on airport property shall not create an obstruction to air navigation nor shall they interfere with the free and unobstructed movement of aircraft. Unless otherwise shown on the plans and/or CSPP, the storage of materials and the location of the Contractor's plant and parked equipment or vehicles shall be as directed by the RPR. Private property shall not be used for storage purposes without written permission of the Owner or lessee of such property. The Contractor shall make all arrangements and bear all expenses for the storage of materials on private property. Upon request, the Contractor shall furnish the RPR a copy of the property Owner's permission.

All storage sites on private or airport property shall be restored to their original condition by the Contractor at their expense, except as otherwise agreed to (in writing) by the Owner or lessee of the property.

60-07 Unacceptable materials. Any material or assembly that does not conform to the requirements of the contract, plans, or specifications shall be considered unacceptable and shall be rejected. The Contractor shall remove any rejected material or assembly from the site of the work, unless otherwise instructed by the RPR.

Rejected material or assembly, the defects of which have been corrected by the Contractor, shall not be returned to the site of the work until such time as the RPR has approved its use in the work.

60-08 Owner furnished materials. The Contractor shall furnish all materials required to complete the work, except those specified, if any, to be furnished by the Owner. Owner-furnished materials shall be made available to the Contractor at the location specified.

All costs of handling, transportation from the specified location to the site of work, storage, and installing Owner-furnished materials shall be included in the unit price bid for the contract item in which such Owner-furnished material is used.

After any Owner-furnished material has been delivered to the location specified, the Contractor shall be responsible for any demurrage, damage, loss, or other deficiencies that may occur during the Contractor's handling, storage, or use of such Owner-furnished material. The Owner will deduct from any monies due or to become due the Contractor any cost incurred by the Owner in making good such loss due to the Contractor's handling, storage, or use of Owner-furnished materials.

Section 70 Legal Regulations and Responsibility to Public

70-01 Laws to be observed. The Contractor shall keep fully informed of all federal and state laws, all local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of the work. The Contractor shall at all times observe and comply with all such laws, ordinances, regulations, orders, and decrees; and shall protect and indemnify the Owner and all their officers, agents, or servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by the Contractor or the Contractor's employees.

70-02 Permits, licenses, and taxes. The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful execution of the work.

70-03 Patented devices, materials, and processes. If the Contractor is required or desires to use any design, device, material, or process covered by letters of patent or copyright, the Contractor shall provide for such use by suitable legal agreement with the Patentee or Owner. The Contractor and the surety shall indemnify and hold harmless the Owner, any third party, or political subdivision from any and all claims for infringement by reason of the use of any such patented design, device, material or process, or any trademark or copyright, and shall indemnify the Owner for any costs, expenses, and damages which it may be obliged to pay by reason of an infringement, at any time during the execution or after the completion of the work.

70-04 Restoration of surfaces disturbed by others. The Owner reserves the right to authorize the construction, reconstruction, or maintenance of any public or private utility service, FAA or National Oceanic and Atmospheric Administration (NOAA) facility, or a utility service of another government agency at any time during the progress of the work. To the extent that such construction, reconstruction, or maintenance has been coordinated with the Owner, such authorized work (by others) must be shown on the plans.

Except as listed above, the Contractor shall not permit any individual, firm, or corporation to excavate or otherwise disturb such utility services or facilities located within the limits of the work without the written permission of the RPR.

Should the Owner of public or private utility service, FAA, or NOAA facility, or a utility service of another government agency be authorized to construct, reconstruct, or maintain such utility service or facility during the progress of the work, the Contractor shall cooperate with such Owners by arranging and performing the work in this contract to facilitate such construction, reconstruction or maintenance by others whether or not such work by others is listed above. When ordered as extra work by the RPR, the Contractor shall make all necessary repairs to the work which are due to such authorized work by others, unless otherwise provided for in the contract, plans, or specifications. It is understood and agreed that the Contractor shall not be entitled to make any claim for damages due to such authorized work by others or for any delay to the work resulting from such authorized work.

70-05 Federal Participation. The United States Government has agreed to reimburse the Owner for some portion of the contract costs. The contract work is subject to the inspection and approval of duly authorized representatives of the FAA Administrator. No requirement of this contract shall be construed as making the United States a party to the contract nor will any such requirement interfere, in any way, with the rights of either party to the contract.

70-06 Sanitary, health, and safety provisions. The Contractor's worksite and facilities shall comply with applicable federal, state, and local requirements for health, safety and sanitary provisions.

70-07 Public convenience and safety. The Contractor shall control their operations and those of their subcontractors and all suppliers, to assure the least inconvenience to the traveling public. Under all circumstances, safety shall be the most important consideration.

The Contractor shall maintain the free and unobstructed movement of aircraft and vehicular traffic with respect to their own operations and those of their own subcontractors and all suppliers in accordance with Section 40, paragraph 40-05, *Maintenance of Traffic,* and shall limit such operations for the convenience and safety of the traveling public as specified in Section 80, paragraph 80-04, *Limitation of Operations*.

The Contractor shall remove or control debris and rubbish resulting from its work operations at frequent intervals, and upon the order of the RPR. If the RPR determines the existence of Contractor debris in the work site represents a hazard to airport operations and the Contractor is unable to respond in a prompt and reasonable manner, the RPR reserves the right to assign the task of debris removal to a third party and recover the resulting costs as a liquidated damage against the Contractor.

70-08 Construction Safety and Phasing Plan (CSPP). The Contractor shall complete the work in accordance with the approved Construction Safety and Phasing Plan (CSPP) developed in accordance with AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP is attached to the project manual and specifications.

70-09 Use of explosives. The use of explosives is not permitted on this project.

70-10 Protection and restoration of property and landscape. The Contractor shall be responsible for the preservation of all public and private property, and shall protect carefully from disturbance or damage all land monuments and property markers until the Engineer/RPR has witnessed or otherwise referenced their location and shall not move them until directed.

The Contractor shall be responsible for all damage or injury to property of any character, during the execution of the work, resulting from any act, omission, neglect, or misconduct in manner or method of executing the work, or at any time due to defective work or materials, and said responsibility shall not be released until the project has been completed and accepted.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the non-execution thereof by the Contractor, the Contractor shall restore, at their expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, or otherwise restoring as may be directed, or the Contractor shall make good such damage or injury in an acceptable manner.

70-11 Responsibility for damage claims. The Contractor shall indemnify and hold harmless the Engineer/RPR and the Owner and their officers, agents, and employees from all suits, actions, or claims, of any character, brought because of any injuries or damage received or sustained by any person, persons, or property on account of the operations of the Contractor; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act or omission, neglect, or misconduct of said Contractor; or because of any claims or amounts recovered from any infringements of patent, trademark, or copyright; or from any claims or amounts arising or recovered under the "Workmen's Compensation Act," or any other law, ordinance, order, or decree. Money due the Contractor under and by virtue of their own contract considered necessary by the Owner for such purpose may be retained for the use of the Owner or, in case no money is due, their own surety may be held until such suits, actions, or claims for injuries or damages shall have been settled and suitable evidence to that effect furnished to the Owner, except that money due the

Contractor will not be withheld when the Contractor produces satisfactory evidence that he or she is adequately protected by public liability and property damage insurance.

70-12 Third party beneficiary clause. It is specifically agreed between the parties executing the contract that it is not intended by any of the provisions of any part of the contract to create for the public or any member thereof, a third-party beneficiary or to authorize anyone not a party to the contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of the contract.

70-13 Opening sections of the work to traffic. If it is necessary for the Contractor to complete portions of the contract work for the beneficial occupancy of the Owner prior to completion of the entire contract, such "phasing" of the work must be specified below and indicated on the approved Construction Safety and Phasing Plan (CSPP) and the project plans. When so specified, the Contractor shall complete such portions of the work on or before the date specified or as otherwise specified. See phasing plan on sheets G03 – G07 of the plans.

The project shall be completed within 155 calendar days as outlined below:

Phase 1 has a duration of 66 calendar days

Work Area A shall begin at the start of Phase 1

Phase 2 has a duration of 44 calendar days

Work Area A shall be complete at the end of Phase 2 after 110 calendar days

Work Area B shall begin at the start of Phase 2

Phase 3 has a duration of 45 calendar days

Work Area B shall be complete at the end of Phase 3 after 89 calendar days

Work Area C shall begin at the start of Phase 3

Upon completion of any portion of work listed above, such portion shall be accepted by the Owner in accordance with Section 50, paragraph 50-14, *Partial Acceptance*.

No portion of the work may be opened by the Contractor until directed by the Owner in writing. Should it become necessary to open a portion of the work to traffic on a temporary or intermittent basis, such openings shall be made when, in the opinion of the RPR, such portion of the work is in an acceptable condition to support the intended traffic. Temporary or intermittent openings are considered to be inherent in the work and shall not constitute either acceptance of the portion of the work so opened or a waiver of any provision of the contract. Any damage to the portion of the work so opened that is not attributable to traffic which is permitted by the Owner shall be repaired by the Contractor at their expense.

The Contractor shall make their own estimate of the inherent difficulties involved in completing the work under the conditions herein described and shall not claim any added compensation by reason of delay or increased cost due to opening a portion of the contract work.

The Contractor must conform to safety standards contained AC 150/5370-2 and the approved CSPP.

Contractor shall refer to the plans, specifications, and the approved CSPP to identify barricade requirements, temporary and/or permanent markings, airfield lighting, guidance signs and other safety requirements prior to opening up sections of work to traffic.

70-14 Contractor's responsibility for work. Until the RPR's final written acceptance of the entire completed work, excepting only those portions of the work accepted in accordance with Section 50, paragraph 50-14, *Partial Acceptance*, the Contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part due to the action of the elements or from any other cause, whether arising from the execution or from the non-execution of the work. The Contractor shall

rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God such as earthquake, tidal wave, tornado, hurricane or other cataclysmic phenomenon of nature, or acts of the public enemy or of government authorities.

If the work is suspended for any cause whatever, the Contractor shall be responsible for the work and shall take such precautions necessary to prevent damage to the work. The Contractor shall provide for normal drainage and shall erect necessary temporary structures, signs, or other facilities at their own expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established planting, seeding, and sodding furnished under the contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

70-15 Contractor's responsibility for utility service and facilities of others. As provided in paragraph 70-04, *Restoration of Surfaces Disturbed by Others*, the Contractor shall cooperate with the owner of any public or private utility service, FAA or NOAA, or a utility service of another government agency that may be authorized by the Owner to construct, reconstruct or maintain such utility services or facilities during the progress of the work. In addition, the Contractor shall control their operations to prevent the unscheduled interruption of such utility services and facilities.

To the extent that such public or private utility services, FAA, or NOAA facilities, or utility services of another governmental agency are known to exist within the limits of the contract work, the approximate locations have been indicated on the plans and/or in the contract documents.

It is understood and agreed that the Owner does not guarantee the accuracy or the completeness of the location information relating to existing utility services, facilities, or structures that may be shown on the plans or encountered in the work. Any inaccuracy or omission in such information shall not relieve the Contractor of the responsibility to protect such existing features from damage or unscheduled interruption of service.

It is further understood and agreed that the Contractor shall, upon execution of the contract, notify the Owners of all utility services or other facilities of their plan of operations. Such notification shall be in writing addressed to "The Person to Contact" as provided in this paragraph and paragraph 70-04, *Restoration of Surfaces Disturbed By Others*. A copy of each notification shall be given to the RPR.

In addition to the general written notification provided, it shall be the responsibility of the Contractor to keep such individual Owners advised of changes in their plan of operations that would affect such Owners.

Prior to beginning the work in the general vicinity of an existing utility service or facility, the Contractor shall again notify each such Owner of their plan of operation. If, in the Contractor's opinion, the Owner's assistance is needed to locate the utility service or facility or the presence of a representative of the Owner is desirable to observe the work, such advice should be included in the notification. Such notification shall be given by the most expeditious means to reach the utility owner's "Person to Contact" no later than two normal business days prior to the Contractor's commencement of operations in such general vicinity. The Contractor shall furnish a written summary of the notification to the RPR.

The Contractor's failure to give the two days' notice shall be cause for the Owner to suspend the Contractor's operations in the general vicinity of a utility service or facility.

Where the outside limits of an underground utility service have been located and staked on the ground, the Contractor shall be required to use hand excavation methods within 3 feet (1 m) of such outside limits at such points as may be required to ensure protection from damage due to the Contractor's operations.

Should the Contractor damage or interrupt the operation of a utility service or facility by accident or otherwise, the Contractor shall immediately notify the proper authority and the RPR and shall take all reasonable measures to prevent further damage or interruption of service. The Contractor, in such events, shall cooperate with the utility service or facility owner and the RPR continuously until such damage has been repaired and service restored to the satisfaction of the utility or facility owner.

The Contractor shall bear all costs of damage and restoration of service to any utility service or facility due to their operations whether due to negligence or accident. The Owner reserves the right to deduct such costs from any monies due or which may become due the Contractor, or their own surety.

70-15.1 FAA facilities and cable runs. The Contractor is hereby advised that the construction limits of the project include existing facilities and buried cable runs that are owned, operated and maintained by the FAA. The Contractor, during the execution of the project work, shall comply with the following:

a. The Contractor shall permit FAA maintenance personnel the right of access to the project work site for purposes of inspecting and maintaining all existing FAA owned facilities.

b. The Contractor shall provide notice to the FAA Air Traffic Organization (ATO)/Technical Operations/System Support Center (SSC) Point-of-Contact through the airport Owner a minimum of seven (7) calendar days prior to commencement of construction activities in order to permit sufficient time to locate and mark existing buried cables and to schedule any required facility outages.

c. If execution of the project work requires a facility outage, the Contractor shall contact the FAA Point-of-Contact a minimum of 72 hours prior to the time of the required outage.

d. Any damage to FAA cables, access roads, or FAA facilities during construction caused by the Contractor's equipment or personnel whether by negligence or accident will require the Contractor to repair or replace the damaged cables, access road, or FAA facilities to FAA requirements. The Contractor shall not bear the cost to repair damage to underground facilities or utilities improperly located by the FAA.

e. If the project work requires the cutting or splicing of FAA owned cables, the FAA Point-of-Contact shall be contacted a minimum of 72 hours prior to the time the cable work commences. The FAA reserves the right to have a FAA representative on site to observe the splicing of the cables as a condition of acceptance. All cable splices are to be accomplished in accordance with FAA specifications and require approval by the FAA Point-of-Contact as a condition of acceptance by the Owner. The Contractor is hereby advised that FAA restricts the location of where splices may be installed. If a cable splice is required in a location that is not permitted by FAA, the Contractor shall furnish and install a sufficient length of new cable that eliminates the need for any splice.

70-16 Furnishing rights-of-way. The Owner will be responsible for furnishing all rights-of-way upon which the work is to be constructed in advance of the Contractor's operations.

70-17 Personal liability of public officials. In carrying out any of the contract provisions or in exercising any power or authority granted by this contract, there shall be no liability upon the Engineer, RPR, their authorized representatives, or any officials of the Owner either personally or as an official of the Owner. It is understood that in such matters they act solely as agents and representatives of the Owner.

70-18 No waiver of legal rights. Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of final acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or stopped from recovering from the Contractor or their surety, or both, such overpayment as may be sustained, or by failure on the part of the Contractor to fulfill their obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

The Contractor, without prejudice to the terms of the contract, shall be liable to the Owner for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the Owner's rights under any warranty or guaranty.

70-19 Environmental protection. The Contractor shall comply with all federal, state, and local laws and regulations controlling pollution of the environment. The Contractor shall take necessary precautions to prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oils, asphalts, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.

70-20 Archaeological and historical findings. Unless otherwise specified in this subsection, the Contractor is advised that the site of the work is not within any property, district, or site, and does not contain any building, structure, or object listed in the current National Register of Historic Places published by the United States Department of Interior.

Should the Contractor encounter, during their operations, any building, part of a building, structure, or object that is incongruous with its surroundings, the Contractor shall immediately cease operations in that location and notify the RPR. The RPR will immediately investigate the Contractor's finding and the Owner will direct the Contractor to either resume operations or to suspend operations as directed.

Should the Owner order suspension of the Contractor's operations in order to protect an archaeological or historical finding, or order the Contractor to perform extra work, such shall be covered by an appropriate contract change order or supplemental agreement as provided in Section 40, paragraph 40-04, *Extra Work,* and Section 90, paragraph 90-05, *Payment for Extra Work*. If appropriate, the contract change order or supplemental agreement shall include an extension of contract time in accordance with Section 80, paragraph 80-07, *Determination and Extension of Contract Time*.

70-21 Insurance Requirements. Insurance requirements are per the Owner's requirements.

Section 80 Execution and Progress

80-01 Subletting of contract. The Owner will not recognize any subcontractor on the work. The Contractor shall at all times when work is in progress be represented either in person, by a qualified superintendent, or by other designated, qualified representative who is duly authorized to receive and execute orders of the Resident Project Representative (RPR).

The Contractor shall perform, with his organization, an amount of work equal to at least 50 percent of the total contract cost.

Should the Contractor elect to assign their contract, said assignment shall be concurred in by the surety, shall be presented for the consideration and approval of the Owner, and shall be consummated only on the written approval of the Owner.

The Contractor shall provide copies of all subcontracts to the RPR 14 days prior to being utilized on the project. As a minimum, the information shall include the following:

- Subcontractor's legal company name.
- Subcontractor's legal company address, including County name.
- Principal contact person's name, telephone and fax number.
- Complete narrative description, and dollar value of the work to be performed by the subcontractor.
- Copies of required insurance certificates in accordance with the specifications.
- Minority/ non-minority status.

80-02 Notice to proceed (NTP). The Owners notice to proceed will state the date on which contract time commences. The Contractor is expected to commence project operations within **7** days of the NTP date. The Contractor shall notify the RPR at least 24 hours in advance of the time contract operations begins. The Contractor shall not commence any actual operations prior to the date on which the notice to proceed is issued by the Owner.

80-03 Execution and progress. Unless otherwise specified, the Contractor shall submit their coordinated construction schedule showing all work activities for the RPR's review and acceptance at least 10 days prior to the start of work. The Contractor's progress schedule, once accepted by the RPR, will represent the Contractor's baseline plan to accomplish the project in accordance with the terms and conditions of the Contract. The RPR will compare actual Contractor progress against the baseline schedule to determine that status of the Contractor's performance. The Contractor shall provide sufficient materials, equipment, and labor to guarantee the completion of the project in accordance with the plans and specifications within the time set forth in the proposal.

If the Contractor falls significantly behind the submitted schedule, the Contractor shall, upon the RPR's request, submit a revised schedule for completion of the work within the contract time and modify their operations to provide such additional materials, equipment, and labor necessary to meet the revised schedule. Should the execution of the work be discontinued for any reason, the Contractor shall notify the RPR at least 24 hours in advance of resuming operations.

The Contractor shall not commence any actual construction prior to the date on which the NTP is issued by the Owner.

The project schedule shall be prepared as a network diagram in Critical Path Method (CPM), Program Evaluation and Review Technique (PERT), or other format, or as otherwise specified. It shall include information on the sequence of work activities, milestone dates, and activity duration. The schedule shall show all work items identified in the project proposal for each work area and shall include the project start date and end date.

The Contractor shall maintain the work schedule and provide an update and analysis of the progress schedule on a twice monthly basis, or as otherwise specified in the contract. Submission of the work schedule shall not relieve the Contractor of overall responsibility for scheduling, sequencing, and coordinating all work to comply with the requirements of the contract.

80-04 Limitation of operations. The Contractor shall control their operations and the operations of their subcontractors and all suppliers to provide for the free and unobstructed movement of aircraft in the air operations areas (AOA) of the airport.

When the work requires the Contractor to conduct their operations within an AOA of the airport, the work shall be coordinated with airport operations (through the RPR) at least **[** 48 hours **]** prior to commencement of such work. The Contractor shall not close an AOA until so authorized by the RPR and until the necessary temporary marking, signage and associated lighting is in place as provided in Section 70, paragraph 70-08, *Construction Safety and Phasing Plan (CSPP)*.

When the contract work requires the Contractor to work within an AOA of the airport on an intermittent basis (intermittent opening and closing of the AOA), the Contractor shall maintain constant communications as specified; immediately obey all instructions to vacate the AOA; and immediately obey all instructions to resume work in such AOA. Failure to maintain the specified communications or to obey instructions shall be cause for suspension of the Contractor's operations in the AOA until satisfactory conditions are provided. The areas of the AOA identified in the Construction Safety Phasing Plan (CSPP) cannot be closed to operating aircraft to permit the Contractor's operations on a continuous basis and will therefore be closed to aircraft operations intermittently

The Contractor shall be required to conform to safety standards contained in AC 150/5370-2, Operational Safety on Airports During Construction and the approved CSPP.

80-04.1 Operational safety on airport during construction. All Contractors' operations shall be conducted in accordance with the approved project Construction Safety and Phasing Plan (CSPP) and the Safety Plan Compliance Document (SPCD) and the provisions set forth within the current version of AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP included within the contract documents conveys minimum requirements for operational safety on the airport during construction activities. The Contractor shall prepare and submit a SPCD that details how it proposes to comply with the requirements presented within the CSPP.

The Contractor shall implement all necessary safety plan measures prior to commencement of any work activity. The Contractor shall conduct routine checks to assure compliance with the safety plan measures.

The Contractor is responsible to the Owner for the conduct of all subcontractors it employs on the project. The Contractor shall assure that all subcontractors are made aware of the requirements of the CSPP and SPCD and that they implement and maintain all necessary measures.

No deviation or modifications may be made to the approved CSPP and SPCD unless approved in writing by the Owner. The necessary coordination actions to review Contractor proposed modifications to an approved CSPP or approved SPCD can require a significant amount of time.

80-05 Character of workers, methods, and equipment. The Contractor shall, at all times, employ sufficient labor and equipment for prosecuting the work to full completion in the manner and time required by the contract, plans, and specifications.

All workers shall have sufficient skill and experience to perform properly the work assigned to them. Workers engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform the work satisfactorily.

Any person employed by the Contractor or by any subcontractor who violates any operational regulations or operational safety requirements and, in the opinion of the RPR, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the RPR, be removed immediately by the Contractor or subcontractor employing such person, and shall not be employed again in any portion of the work without approval of the RPR.

Should the Contractor fail to remove such person or persons, or fail to furnish suitable and sufficient personnel for the proper execution of the work, the RPR may suspend the work by written notice until compliance with such orders.

All equipment that is proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the work shall not cause injury to previously completed work, adjacent property, or existing airport facilities due to its use.

When the methods and equipment to be used by the Contractor in accomplishing the work are not prescribed in the contract, the Contractor is free to use any methods or equipment that will accomplish the work in conformity with the requirements of the contract, plans, and specifications.

When the contract specifies the use of certain methods and equipment, such methods and equipment shall be used unless otherwise authorized by the RPR. If the Contractor desires to use a method or type of equipment other than specified in the contract, the Contractor may request authority from the RPR to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed and of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with contract requirements. If, after trial use of the substituted methods or equipment, the RPR determines that the work produced does not meet contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove any deficient work and replace it with work of specified quality, or take such other corrective action as the RPR may direct. No change will be made in basis of payment for the contract items involved nor in contract time as a result of authorizing a change in methods or equipment under this paragraph.

80-06 Temporary suspension of the work. The Owner shall have the authority to suspend the work wholly, or in part, for such period or periods the Owner may deem necessary, due to unsuitable weather, or other conditions considered unfavorable for the execution of the work, or for such time necessary due to the failure on the part of the Contractor to carry out orders given or perform any or all provisions of the contract.

In the event that the Contractor is ordered by the Owner, in writing, to suspend work for some unforeseen cause not otherwise provided for in the contract and over which the Contractor has no control, the Contractor may be reimbursed for actual money expended on the work during the period of shutdown. No allowance will be made for anticipated profits. The period of shutdown shall be computed from the effective date of the written order to suspend work to the effective date of the written order to resume the work. Claims for such compensation shall be filed with the RPR within the time period stated in the RPR's order to resume work. The Contractor shall submit with their own claim information substantiating

the amount shown on the claim. The RPR will forward the Contractor's claim to the Owner for consideration in accordance with local laws or ordinances. No provision of this article shall be construed as entitling the Contractor to compensation for delays due to inclement weather or for any other delay provided for in the contract, plans, or specifications.

If it becomes necessary to suspend work for an indefinite period, the Contractor shall store all materials in such manner that they will not become an obstruction nor become damaged in any way. The Contractor shall take every precaution to prevent damage or deterioration of the work performed and provide for normal drainage of the work. The Contractor shall erect temporary structures where necessary to provide for traffic on, to, or from the airport.

80-07 Determination and extension of contract time. The number of calendar days shall be stated in the proposal and contract and shall be known as the Contract Time.

If the contract time requires extension for reasons beyond the Contractor's control, it shall be adjusted as follows:

80-07.1 Contract time based on calendar days. Contract Time based on calendar days shall consist of the number of calendar days stated in the contract counting from the effective date of the Notice to Proceed and including all Saturdays, Sundays, holidays, and non-work days. All calendar days elapsing between the effective dates of the Owner's orders to suspend and resume all work, due to causes not the fault of the Contractor, shall be excluded.

At the time of final payment, the contract time shall be increased in the same proportion as the cost of the actually completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in the contract time shall not consider either cost of work or the extension of contract time that has been covered by a change order or supplemental agreement. Charges against the contract time will cease as of the date of final acceptance.

80-08 Failure to complete on time. For each calendar day or working day, as specified in the contract, that any work remains uncompleted after the contract time (including all extensions and adjustments as provided in paragraph 80-07, *Determination and Extension of Contract Time*) the sum specified in the contract and proposal as liquidated damages (LD) will be deducted from any money due or to become due the Contractor or their own surety. Such deducted sums shall not be deducted as a penalty but shall be considered as liquidation of a reasonable portion of damages including but not limited to additional engineering services that will be incurred by the Owner should the Contractor fail to complete the work in the time provided in their contract.

Schedule	Liquidated Damages Cost	Allowed Construction Time
Phase 1	$2,000/ Calendar Day	66 Calendar Days
Phase 2	$2,000/ Calendar Day	44 Calendar Days
Phase 3	$2,000/ Calendar Day	45 Calendar Days

The maximum construction time allowed for Schedules will be the sum of the time allowed for individual schedules but not more than 155 calendar days. Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, will in no way operate as a wavier on the part of the Owner of any of its rights under the contract.

80-09 Default and termination of contract. The Contractor shall be considered in default of their contract and such default will be considered as cause for the Owner to terminate the contract for any of the following reasons, if the Contractor:

a. Fails to begin the work under the contract within the time specified in the Notice to Proceed, or

b. Fails to perform the work or fails to provide sufficient workers, equipment and/or materials to assure completion of work in accordance with the terms of the contract, or

c. Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable, or

d. Discontinues the execution of the work, or

e. Fails to resume work which has been discontinued within a reasonable time after notice to do so, or

f. Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or

g. Allows any final judgment to stand against the Contractor unsatisfied for a period of 10 days, or

h. Makes an assignment for the benefit of creditors, or

i. For any other cause whatsoever, fails to carry on the work in an acceptable manner.

Should the Owner consider the Contractor in default of the contract for any reason above, the Owner shall immediately give written notice to the Contractor and the Contractor's surety as to the reasons for considering the Contractor in default and the Owner's intentions to terminate the contract.

If the Contractor or surety, within a period of 10 days after such notice, does not proceed in accordance therewith, then the Owner will, upon written notification from the RPR of the facts of such delay, neglect, or default and the Contractor's failure to comply with such notice, have full power and authority without violating the contract, to take the execution of the work out of the hands of the Contractor. The Owner may appropriate or use any or all materials and equipment that have been mobilized for use in the work and are acceptable and may enter into an agreement for the completion of said contract according to the terms and provisions thereof, or use such other methods as in the opinion of the RPR will be required for the completion of said contract in an acceptable manner.

All costs and charges incurred by the Owner, together with the cost of completing the work under contract, will be deducted from any monies due or which may become due the Contractor. If such expense exceeds the sum which would have been payable under the contract, then the Contractor and the surety shall be liable and shall pay to the Owner the amount of such excess.

80-10 Termination for national emergencies. The Owner shall terminate the contract or portion thereof by written notice when the Contractor is prevented from proceeding with the construction contract as a direct result of an Executive Order of the President with respect to the execution of war or in the interest of national defense.

When the contract, or any portion thereof, is terminated before completion of all items of work in the contract, payment will be made for the actual number of units or items of work completed at the contract price or as mutually agreed for items of work partially completed or not started. No claims or loss of anticipated profits shall be considered.

Reimbursement for organization of the work, and other overhead expenses, (when not otherwise included in the contract) and moving equipment and materials to and from the job will be considered, the intent being that an equitable settlement will be made with the Contractor.

Acceptable materials, obtained or ordered by the Contractor for the work and that are not incorporated in the work shall, at the option of the Contractor, be purchased from the Contractor at actual cost as shown by receipted bills and actual cost records at such points of delivery as may be designated by the RPR.

Termination of the contract or a portion thereof shall neither relieve the Contractor of their responsibilities for the completed work nor shall it relieve their surety of its obligation for and concerning any just claim arising out of the work performed.

80-11 Work area, storage area and sequence of operations. The Contractor shall obtain approval from the RPR prior to beginning any work in all areas of the airport. No operating runway, taxiway, or air operations area (AOA) shall be crossed, entered, or obstructed while it is operational. The Contractor shall plan and coordinate work in accordance with the approved CSPP and SPCD.

Section 90 Measurement and Payment

90-01 Measurement of quantities. All work completed under the contract will be measured by the RPR, or their authorized representatives, using United States Customary Units of Measurement**.**

The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice.

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures (or leave-outs) having an area of 9 square feet (0.8 square meters) or less. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the plans or ordered in writing by the RPR.

Unless otherwise specified, all contract items which are measured by the linear foot such as electrical ducts, conduits, pipe culverts, underdrains, and similar items shall be measured parallel to the base or foundation upon which such items are placed.

The term "lump sum" when used as an item of payment will mean complete payment for the work described in the contract. When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.

When requested by the Contractor and approved by the RPR in writing, material specified to be measured by the cubic yard (cubic meter) may be weighed, and such weights will be converted to cubic yards (cubic meters) for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the RPR and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

Measurement and Payment Terms

Term	Description
Excavation and Embankment Volume	In computing volumes of excavation, the average end area method will be used unless otherwise specified.
Measurement and Proportion by Weight	The term "ton" will mean the short ton consisting of 2,000 pounds (907 km) avoirdupois. All materials that are measured or proportioned by weights shall be weighed on accurate, independently certified scales by competent, qualified personnel at locations designated by the RPR. If material is shipped by rail, the car weight may be accepted provided that only the actual weight of material is paid for. However, car weights will not be acceptable for material to be passed through mixing plants. Trucks used to haul material being paid for by weight shall be weighed empty daily at such times as the RPR directs, and each truck shall bear a plainly legible identification mark.

Term	Description
Measurement by Volume	Materials to be measured by volume in the hauling vehicle shall be hauled in approved vehicles and measured therein at the point of delivery. Vehicles for this purpose may be of any size or type acceptable for the materials hauled, provided that the body is of such shape that the actual contents may be readily and accurately determined. All vehicles shall be loaded to at least their water level capacity, and all loads shall be leveled when the vehicles arrive at the point of delivery.
Asphalt Material	Asphalt materials will be measured by the gallon (liter) or ton (kg). When measured by volume, such volumes will be measured at 60°F (16°C) or will be corrected to the volume at 60°F (16°C) using ASTM D1250 for asphalts. Net certified scale weights or weights based on certified volumes in the case of rail shipments will be used as a basis of measurement, subject to correction when asphalt material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work. When asphalt materials are shipped by truck or transport, net certified weights by volume, subject to correction for loss or foaming, will be used for computing quantities.
Cement	Cement will be measured by the ton (kg) or hundredweight (km).
Structure	Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.
Timber	Timber will be measured by the thousand feet board measure (MFBM) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.
Plates and Sheets	The thickness of plates and galvanized sheet used in the manufacture of corrugated metal pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and measured in decimal fraction of inch.
Miscellaneous Items	When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gauge, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.
Scales	Scales must be tested for accuracy and serviced before use. Scales for weighing materials which are required to be proportioned or measured and paid for by weight shall be furnished, erected, and maintained by the Contractor, or be certified permanently installed commercial scales. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end. Scales shall be accurate within 0.5% of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of the RPR before beginning work and at such other times as requested. The intervals

Term	Description
	shall be uniform in spacing throughout the graduated or marked length of the beam or dial and shall not exceed 0.1% of the nominal rated capacity of the scale, but not less than one pound (454 grams). The use of spring balances will not be permitted. In the event inspection reveals the scales have been "overweighing" (indicating more than correct weight) they will be immediately adjusted. All materials received subsequent to the last previous correct weighting-accuracy test will be reduced by the percentage of error in excess of 0.5%. In the event inspection reveals the scales have been under-weighing (indicating less than correct weight), they shall be immediately adjusted. No additional payment to the Contractor will be allowed for materials previously weighed and recorded. Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and the RPR can safely and conveniently view them. Scale installations shall have available ten standard 50-pound (2.3 km) weights for testing the weighing equipment or suitable weights and devices for other approved equipment. All costs in connection with furnishing, installing, certifying, testing, and maintaining scales; for furnishing check weights and scale house; and for all other items specified in this subsection, for the weighing of materials for proportioning or payment, shall be included in the unit contract prices for the various items of the project.
Rental Equipment	Rental of equipment will be measured by time in hours of actual working time and necessary traveling time of the equipment within the limits of the work. Special equipment ordered in connection with extra work will be measured as agreed in the change order or supplemental agreement authorizing such work as provided in paragraph 90-05 *Payment for Extra Work*.
Pay Quantities	When the estimated quantities for a specific portion of the work are designated as the pay quantities in the contract, they shall be the final quantities for which payment for such specific portion of the work will be made, unless the dimensions of said portions of the work shown on the plans are revised by the RPR. If revised dimensions result in an increase or decrease in the quantities of such work, the final quantities for payment will be revised in the amount represented by the authorized changes in the dimensions.

90-02 Scope of payment. The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials, for performing all work under the contract in a complete and acceptable manner, and for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the execution thereof, subject to the provisions of Section 70, paragraph 70-18, *No Waiver of Legal Rights*.

When the "basis of payment" subsection of a technical specification requires that the contract price (price bid) include compensation for certain work or material essential to the item, this same work or material

will not also be measured for payment under any other contract item which may appear elsewhere in the contract, plans, or specifications.

90-03 Compensation for altered quantities. When the accepted quantities of work vary from the quantities in the proposal, the Contractor shall accept as payment in full, so far as contract items are concerned, payment at the original contract price for the accepted quantities of work actually completed and accepted. No allowance, except as provided for in Section 40, paragraph 40-02, *Alteration of Work and Quantities,* will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor which results directly from such alterations or indirectly from their own unbalanced allocation of overhead and profit among the contract items, or from any other cause.

90-04 Payment for omitted items. As specified in Section 40, paragraph 40-03, *Omitted Items,* the RPR shall have the right to omit from the work (order nonperformance) any contract item, except major contract items, in the best interest of the Owner.

Should the RPR omit or order nonperformance of a contract item or portion of such item from the work, the Contractor shall accept payment in full at the contract prices for any work actually completed and acceptable prior to the RPR's order to omit or non-perform such contract item.

Acceptable materials ordered by the Contractor or delivered on the work prior to the date of the RPR's order will be paid for at the actual cost to the Contractor and shall thereupon become the property of the Owner.

In addition to the reimbursement hereinbefore provided, the Contractor shall be reimbursed for all actual costs incurred for the purpose of performing the omitted contract item prior to the date of the RPR's order. Such additional costs incurred by the Contractor must be directly related to the deleted contract item and shall be supported by certified statements by the Contractor as to the nature the amount of such costs.

90-05 Payment for extra work. Extra work, performed in accordance with Section 40, paragraph 40-04, *Extra Work*, will be paid for at the contract prices or agreed prices specified in the change order or supplemental agreement authorizing the extra work.

90-06 Partial payments. Partial payments will be made to the Contractor at least once each month as the work progresses. Said payments will be based upon estimates, prepared by the RPR, of the value of the work performed and materials complete and in place, in accordance with the contract, plans, and specifications. Such partial payments may also include the delivered actual cost of those materials stockpiled and stored in accordance with paragraph 90-07, *Payment for Materials on Hand*. No partial payment will be made when the amount due to the Contractor since the last estimate amounts to less than five hundred dollars.

a. From the total of the amount determined to be payable on a partial payment, 10% percent of such total amount will be deducted and retained by the Owner for protection of the Owner's interests. Unless otherwise instructed by the Owner, the amount retained by the Owner will be in effect until the final payment is made except as follows:

(1) Contractor may request release of retainage on work that has been partially accepted by the Owner in accordance with Section 50-14. Contractor must provide a certified invoice to the RPR that supports the value of retainage held by the Owner for partially accepted work.

(2) In lieu of retainage, the Contractor may exercise at its option the establishment of an escrow account per paragraph 90-08.

b. The Contractor is required to pay all subcontractors for satisfactory performance of their contracts no later than 30 days after the Contractor has received a partial payment. Contractor must provide the Owner evidence of prompt and full payment of retainage held by the prime Contractor to the subcontractor within 30 days after the subcontractor's work is satisfactorily completed. A subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and documented as required by the Owner. When the Owner has made an incremental acceptance of a portion of a prime contract, the work of a subcontractor covered by that acceptance is deemed to be satisfactorily completed.

c. When at least 95% of the work has been completed to the satisfaction of the RPR, the RPR shall, at the Owner's discretion and with the consent of the surety, prepare estimates of both the contract value and the cost of the remaining work to be done. The Owner may retain an amount not less than twice the contract value or estimated cost, whichever is greater, of the work remaining to be done. The remainder, less all previous payments and deductions, will then be certified for payment to the Contractor.

It is understood and agreed that the Contractor shall not be entitled to demand or receive partial payment based on quantities of work in excess of those provided in the proposal or covered by approved change orders or supplemental agreements, except when such excess quantities have been determined by the RPR to be a part of the final quantity for the item of work in question.

No partial payment shall bind the Owner to the acceptance of any materials or work in place as to quality or quantity. All partial payments are subject to correction at the time of final payment as provided in paragraph 90-09, *Acceptance and Final Payment*.

The Contractor shall deliver to the Owner a complete release of all claims for labor and material arising out of this contract before the final payment is made. If any subcontractor or supplier fails to furnish such a release in full, the Contractor may furnish a bond or other collateral satisfactory to the Owner to indemnify the Owner against any potential lien or other such claim. The bond or collateral shall include all costs, expenses, and attorney fees the Owner may be compelled to pay in discharging any such lien or claim.

90-07 Payment for materials on hand. Partial payments may be made to the extent of the delivered cost of materials to be incorporated in the work, provided that such materials meet the requirements of the contract, plans, and specifications and are delivered to acceptable sites on the airport property or at other sites in the vicinity that are acceptable to the Owner. Such delivered costs of stored or stockpiled materials may be included in the next partial payment after the following conditions are met:

a. The material has been stored or stockpiled in a manner acceptable to the RPR at or on an approved site.

b. The Contractor has furnished the RPR with acceptable evidence of the quantity and quality of such stored or stockpiled materials.

c. The Contractor has furnished the RPR with satisfactory evidence that the material and transportation costs have been paid.

d. The Contractor has furnished the Owner legal title (free of liens or encumbrances of any kind) to the material stored or stockpiled.

e. The Contractor has furnished the Owner evidence that the material stored or stockpiled is insured against loss by damage to or disappearance of such materials at any time prior to use in the work.

It is understood and agreed that the transfer of title and the Owner's payment for such stored or stockpiled materials shall in no way relieve the Contractor of their responsibility for furnishing and placing such materials in accordance with the requirements of the contract, plans, and specifications.

In no case will the amount of partial payments for materials on hand exceed the contract price for such materials or the contract price for the contract item in which the material is intended to be used.

No partial payment will be made for stored or stockpiled living or perishable plant materials.

The Contractor shall bear all costs associated with the partial payment of stored or stockpiled materials in accordance with the provisions of this paragraph.

90-08 Payment of withheld funds. At the Contractor's option, if an Owner withholds retainage in accordance with the methods described in paragraph 90-06 *Partial Payments*, the Contractor may request that the Owner deposit the retainage into an escrow account. The Owner's deposit of retainage into an escrow account is subject to the following conditions:

a. The Contractor shall bear all expenses of establishing and maintaining an escrow account and escrow agreement acceptable to the Owner.

b. The Contractor shall deposit to and maintain in such escrow only those securities or bank certificates of deposit as are acceptable to the Owner and having a value not less than the retainage that would otherwise be withheld from partial payment.

c. The Contractor shall enter into an escrow agreement satisfactory to the Owner.

d. The Contractor shall obtain the written consent of the surety to such agreement.

90-09 Acceptance and final payment. When the contract work has been accepted in accordance with the requirements of Section 50, paragraph 50-15, *Final Acceptance*, the RPR will prepare the final estimate of the items of work actually performed. The Contractor shall approve the RPR's final estimate or advise the RPR of the Contractor's objections to the final estimate which are based on disputes in measurements or computations of the final quantities to be paid under the contract as amended by change order or supplemental agreement. The Contractor and the RPR shall resolve all disputes (if any) in the measurement and computation of final quantities to be paid within 30 calendar days of the Contractor's receipt of the RPR's final estimate. If, after such 30-day period, a dispute still exists, the Contractor may approve the RPR's estimate under protest of the quantities in dispute, and such disputed quantities shall be considered by the Owner as a claim in accordance with Section 50, paragraph 50-16, *Claims for Adjustment and Disputes*.

After the Contractor has approved, or approved under protest, the RPR's final estimate, and after the RPR's receipt of the project closeout documentation required in paragraph 90-11, *Contractor Final Project Documentation*, final payment will be processed based on the entire sum, or the undisputed sum in case of approval under protest, determined to be due the Contractor less all previous payments and all amounts to be deducted under the provisions of the contract. All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

If the Contractor has filed a claim for additional compensation under the provisions of Section 50, paragraph 50-16, *Claims for Adjustments and Disputes,* or under the provisions of this paragraph, such claims will be considered by the Owner in accordance with local laws or ordinances. Upon final adjudication of such claims, any additional payment determined to be due the Contractor will be paid pursuant to a supplemental final estimate.

90-10 Construction warranty.

a. In addition to any other warranties in this contract, the Contractor warrants that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, workmanship, or design furnished, or performed by the Contractor or any subcontractor or supplier at any tier.

b. This warranty shall continue for a period of one year from the date of final acceptance of the work, except as noted. If the Owner takes possession of any part of the work before final acceptance, this warranty shall continue for a period of one year from the date the Owner takes possession. However, this will not relieve the Contractor from corrective items required by the final acceptance of the project work. Light Emitting Diode emitting diode (LED) light fixtures with the exception of obstruction lighting, must be warranted by the manufacturer for a minimum of four (4) years after date of installation inclusive of all electronics.

c. The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Owner real or personal property, when that damage is the result of the Contractor's failure to conform to contract requirements; or any defect of equipment, material, workmanship, or design furnished by the Contractor.

d. The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for one year from the date of repair or replacement.

e. The Owner will notify the Contractor, in writing, within seven (7)days after the discovery of any failure, defect, or damage.

f. If the Contractor fails to remedy any failure, defect, or damage within 14 days after receipt of notice, the Owner shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

g. With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall: (1) Obtain all warranties that would be given in normal commercial practice; (2) Require all warranties to be executed, in writing, for the benefit of the Owner, as directed by the Owner, and (3) Enforce all warranties for the benefit of the Owner.

h. This warranty shall not limit the Owner's rights with respect to latent defects, gross mistakes, or fraud.

90-11 Contractor Final Project Documentation. Approval of final payment to the Contractor is contingent upon completion and submittal of the items listed below. The final payment will not be approved until the RPR approves the Contractor's final submittal. The Contractor shall:

a. Provide two (2) copies of all manufacturers warranties specified for materials, equipment, and installations.

b. Provide weekly payroll records (not previously received) from the general Contractor and all subcontractors.

c. Complete final cleanup in accordance with Section 40, paragraph 40-08, *Final Cleanup*.

d. Complete all punch list items identified during the Final Inspection.

e. Provide complete release of all claims for labor and material arising out of the Contract.

f. Provide a certified statement signed by the subcontractors, indicating actual amounts paid to the Disadvantaged Business Enterprise (DBE) subcontractors and/or suppliers associated with the project.

g. When applicable per state requirements, return copies of sales tax completion forms.

h. Manufacturer's certifications for all items incorporated in the work.

i. All required record drawings, as-built drawings or as-constructed drawings.

j. Project Operation and Maintenance (O&M) Manual(s).

k. Security for Construction Warranty.

l. Equipment commissioning documentation submitted, if required.

SUPPLEMENTARY PROVISIONS

PART A - FEDERAL CONTRACT PROVISIONS FOR CONSTRUCTION AND EQUIPMENT CONTRACTS

APPLICATION OF REFERENCES

ALL REFERENCES MADE HEREIN TO "CONTRACTOR", "BIDDER", AND "OFFEROR" SHALL PERTAIN TO THE PRIME CONTRACTOR. ALL REFERENCES MADE HEREIN TO "SUBCONTRACTOR" SHALL PERTAIN TO ANY AND ALL SUBCONTRACTORS UNDER CONTRACT WITH THE PRIME CONTRACTOR OR A SUBCONTRACTOR.

ALL REFERENCES MADE HEREIN TO "CONSULTANT" SHALL PERTAIN TO ARCHITECT/ENGINEER (A/E) UNDER CONTRACT WITH THE SPONSOR. ALL REFERENCES MADE HEREIN TO "SUBCONSULTANT" SHALL PERTAIN TO ANY AND ALL SUBCONSULTANTS UNDER CONTRACT WITH THE A/E.

ALL REFERENCES MADE HEREIN TO "SPONSOR" AND "OWNER" SHALL PERTAIN TO THE STATE, CITY, AIRPORT AUTHORITY OR OTHER PUBLIC ENTITY EXECUTING CONTRACTS WITH THE PRIME CONTRACTOR AND/OR THE A/E.

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PROVISIONS APPLICABLE TO ALL CONTRACTS

ACCESS TO RECORDS AND REPORTS

Reference: 2 CFR § 200.334
2 CFR § 200.337
FAA Order 5100.38

The Contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the Owner, the Federal Aviation Administration and the Comptroller General of the United States or any of their duly authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts and transcriptions. The Contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters are closed.

BUY AMERICAN PREFERENCE

Reference: 49 USC § 50101
Executive Order 14005, *Ensuring the Future is Made in All of America by All of America's Workers*
Bipartisan Infrastructure Law (Pub. L. No. 117-58), Build America, Buy America (BABA)

The Contractor certifies that its bid/offer is in compliance with 49 USC § 50101, BABA and other related Made in America Laws,[1] U.S. statutes, guidance, and FAA policies, which provide that Federal funds may not be obligated unless all iron, steel and manufactured goods used in AIP funded projects are produced in the United States, unless the Federal Aviation Administration has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

The bidder or offeror must complete and submit the certification of compliance with FAA's Buy American Preference, BABA and Made in America laws included herein with their bid or offer. The Airport Sponsor/Owner will reject as nonresponsive any bid or offer that does not include a completed certification of compliance with FAA's Buy American Preference and BABA.

The bidder or offeror certifies that all constructions materials, defined to mean an article, material, or supply other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of: non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber; or drywall used in the project are manufactured in the U.S.

[1] Per Executive Order 14005 "Made in America Laws" means all statutes, regulations, rules, and Executive Orders relating to federal financial assistance awards or federal procurement, including those that refer to "Buy America" or "Buy American," that require, or provide a preference for, the purchase or acquisition of goods, products, or materials produced in the United States, including iron, steel, and manufactured products offered in the United States.

CIVIL RIGHTS – GENERAL

Reference: 49 USC § 47123

In all its activities within the scope of its airport program, the Contractor agrees to comply with pertinent statutes, Executive Orders, and such rules as identified in Title VI List of Pertinent Nondiscrimination Acts and Authorities to ensure that no person shall, on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance.

This provision is in addition to that required by Title VI of the Civil Rights Act of 1964.

The above provision binds the Contractor and subcontractors from the bid solicitation period through the completion of the contract.

CIVIL RIGHTS – TITLE VI ASSURANCES

Reference: 49 USC § 47123
FAA Order 1400.11

Title VI Solicitation Notice

The Sponsor, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 USC §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders or offerors that it will affirmatively ensure that for any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and no businesses will be discriminated against on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability in consideration for an award.

Title VI List of Pertinent Nondiscrimination Acts and Authorities

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "Contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 USC § 2000d *et seq*., 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin);
- 49 CFR part 21 (Non-discrimination in Federally-Assisted programs of the Department of Transportation—Effectuation of Title VI of the Civil Rights Act of 1964);
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 USC § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Section 504 of the Rehabilitation Act of 1973 (29 USC § 794 *et seq*.), as amended (prohibits discrimination on the basis of disability); and 49 CFR part 27 (Nondiscrimination on the Basis of Disability in Programs or Activities Receiving Federal Financial Assistance);
- The Age Discrimination Act of 1975, as amended (42 USC § 6101 *et seq*.) (prohibits discrimination on the basis of age);

- Airport and Airway Improvement Act of 1982 (49 USC § 47123), as amended (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987 (PL 100-259) (broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, the Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act of 1990 (42 USC § 12101, et seq) (prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities) as implemented by U.S. Department of Transportation regulations at 49 CFR parts 37 and 38;
- The Federal Aviation Administration's Nondiscrimination statute (49 USC § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (ensures nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations);
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs [70 Fed. Reg. 74087 (2005)];
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 USC § 1681, et seq).

Nondiscrimination Requirements / Title VI Clauses for Compliance

Compliance with Nondiscrimination Requirements:

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "Contractor") agrees as follows:

1. **Compliance with Regulations:** The Contractor (hereinafter includes consultants) will comply with the Title VI List of Pertinent Nondiscrimination Acts and Authorities, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Nondiscrimination:** The Contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including

employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.

3. **Solicitations for Subcontracts, including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the Contractor of the contractor's obligations under this contract and the Nondiscrimination Acts and Authorities on the grounds of race, color, or national origin.
4. **Information and Reports:** The Contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Nondiscrimination Acts and Authorities and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the Contractor will so certify to the Sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a Contractor's noncompliance with the non-discrimination provisions of this contract, the Sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:
    a. Withholding payments to the Contractor under the contract until the Contractor complies; and/or
    b. Cancelling, terminating, or suspending a contract, in whole or in part.
6. **Incorporation of Provisions:** The Contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations, and directives issued pursuant thereto. The Contractor will take action with respect to any subcontract or procurement as the Sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the Contractor may request the Sponsor to enter into any litigation to protect the interests of the Sponsor. In addition, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

Reference: 2 CFR § 200, Appendix II(K)
2 CFR § 200.216

Contractor and Subcontractor agree to comply with mandatory standards and policies relating to use and procurement of certain telecommunications and video surveillance services or equipment in compliance with the National Defense Authorization Act [Public Law 115-232 § 889(f)(1)].

FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

Reference: 29 USC § 201, et seq
2 CFR § 200.430

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 CFR part 201, et seq, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part-time workers.

The Contractor has full responsibility to monitor compliance to the referenced statute or regulation. The Contractor must address any claims or disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

Reference: 20 CFR Part 1910

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. The employer must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The employer retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (29 CFR Part 1910). The employer must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

RIGHT TO INVENTIONS

Reference: 2 CFR Part 200, Appendix II(F)
37 CFR Part 401

Contracts or agreements that include the performance of experimental, developmental, or research work must provide for the rights of the Federal Government and the Owner in any resulting invention as established by 37 CFR part 401, Rights to Inventions Made by Non-profit Organizations and Small Business Firms under Government Grants, Contracts, and Cooperative Agreements. This contract incorporates by reference the patent and inventions rights as specified within 37 CFR § 401.14. Contractor must include this requirement in all sub-tier contracts involving experimental, developmental, or research work.

SEISMIC SAFETY

Reference: 49 CFR Part 41

The Contractor agrees to ensure that all work performed under this contract, including work performed by subcontractors, conforms to a building code standard that provides a level of seismic safety substantially equivalent to standards established by the National Earthquake Hazards Reduction Program (NEHRP). Local building codes that model their code after the current version of the International Building Code (IBC) meet the NEHRP equivalency level for seismic safety.

TAX DELINQUENCY AND FELONY CONVICTIONS

Reference: Section 8113 of the Consolidated Appropriations Act, 2022 (Public Law 117-103) and similar provisions in subsequent appropriations acts
DOT Order 4200.6 – Appropriations Act Requirements for Procurement and Non-Procurement Regarding Tax Delinquency and Felony Convictions

The Contractor certifies:

1) It is not a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. A tax delinquency is any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

2) It is not a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months. A felony conviction is a conviction within the preceding twenty four (24) months of a felony criminal violation under any Federal law and includes conviction of an offense defined in a section of the U.S. code that specifically classifies the offense as a felony and conviction of an offense that is classified as a felony under 18 USC § 3559.

The Contractor agrees to incorporate the above certification in all lower tier subcontracts.

TRADE RESTRICTION CERTIFICATION

Reference: 49 USC § 50104
49 CFR Part 30

By submission of an offer, the Offeror certifies that with respect to this solicitation and any resultant contract, the Offeror:

1) is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms as published by the Office of the United States Trade Representative (USTR);

2) has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country included on the list of countries that discriminate against U.S. firms as published by the USTR; and

3) has not entered into any subcontract for any product to be used on the Federal project that is produced in a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18 USC § 1001.

The Offeror/Contractor must provide immediate written notice to the Owner if the Offeror/Contractor learns that its certification or that of a subcontractor was erroneous when

submitted or has become erroneous by reason of changed circumstances. The Contractor must require subcontractors provide immediate written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR § 30.17, no contract shall be awarded to an Offeror or subcontractor:

1) who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR; or
2) whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such USTR list; or
3) who incorporates in the public works project any product of a foreign country on such USTR list.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

The Offeror agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in all lower tier subcontracts. The Contractor may rely on the certification of a prospective subcontractor that it is not a firm from a foreign country included on the list of countries that discriminate against U.S. firms as published by USTR, unless the Offeror has knowledge that the certification is erroneous.

This certification is a material representation of fact upon which reliance was placed when making an award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration (FAA) may direct through the Owner cancellation of the contract or subcontract for default at no cost to the Owner or the FAA.

VETERAN'S PREFERENCE

Reference: 49 USC § 47112(c)

In the employment of labor (excluding executive, administrative, and supervisory positions), the Contractor and all sub-tier contractors must give preference to covered veterans as defined within Title 49 United States Code Section 47112. Covered veterans include Vietnam-era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns (as defined by 15 USC § 632) owned and controlled by disabled veterans. This preference only applies when there are covered veterans readily available and qualified to perform the work to which the employment relates.

DOMESTIC PREFERENCES FOR PROCUREMENTS

Reference: 2 CFR § 200.322
2 CFR Part 200, Appendix II(L)

The Bidder or Offeror certifies by signing and submitting this bid or proposal that, to the greatest extent practicable, the Bidder or Offeror has provided a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including, but not limited to, iron, aluminum, steel, cement, and other manufactured products) in compliance with 2 CFR § 200.322.

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $2,000

COPELAND "ANTI-KICKBACK' ACT

Reference: 2 CFR Part 200, Appendix II(D)
29 CFR Parts 3 and 5

Contractor must comply with the requirements of the Copeland "Anti-Kickback" Act (18 USC 874 and 40 USC 3145), as supplemented by Department of Labor regulation 29 CFR part 3. Contractor and subcontractors are prohibited from inducing, by any means, any person employed on the project to give up any part of the compensation to which the employee is entitled. The Contractor and each Subcontractor must submit to the Owner, a weekly statement on the wages paid to each employee performing on covered work during the prior week. Owner must report any violations of the Act to the Federal Aviation Administration.

DAVIS-BACON REQUIREMENTS

Reference: 2 CFR Part 200, Appendix II(D)
29 CFR Part 5
49 USC § 47112(b)
40 USC §§ 3141-3144, 3146, and 3147

1. Minimum Wages.

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalent thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided,* that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under (1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can easily be seen by the workers.

(ii) (A) thru (D)

(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination;

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the Contractor, the laborers, or mechanics to be employed in the classification, or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii) (B) or (C) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided,* that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor

may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding.

The Federal Aviation Administration or the Sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the Federal Aviation Administration may, after written notice to the Contractor, Sponsor, Applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and Basic Records.

(i) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 1(b)(2)(B) of the Davis-Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records that show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual costs incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii) (A) thru (D)

(A) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit the payrolls to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR § 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually

identifying number for each employee (*e.g.,* the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at *http://www.dol.gov/esa/whd/forms/wh347instr.htm* or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker and shall provide them upon request to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit them to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration, the Contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, Sponsor, or Owner).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR § 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR § 5.5 (a)(3)(i), and that such information is correct and complete;

(2) That each laborer and mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The Contractor or subcontractor shall make the records required under paragraph (3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the Sponsor, the Federal Aviation Administration, or the Department of Labor and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the Contractor, Sponsor, applicant, or Owner, take such action as may be necessary to cause the suspension of any further

payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR § 5.12.

4. Apprentices and Trainees.

(i) Apprentices

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees

Except as provided in 29 CFR § 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be

paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination that provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal Employment Opportunity. The utilization of apprentices, trainees, and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act Requirements.

The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

6. Subcontracts.

The Contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR §§ 5.5(a)(1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR § 5.5.

7. Contract Termination: Debarment.

A breach of the contract clauses in paragraph 1 through 10 of this section may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR § 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements.

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes Concerning Labor Standards.

Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors)

and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of Eligibility.

(i) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR § 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR § 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 USC § 1001.

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $10,000

AFFIRMATIVE ACTION REQUIREMENT

Reference: 41 CFR Part 60-4
Executive Order 11246

Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Timetables:	**Goal:**
Goals for minority participation for each trade:	
Goals for female participation in each trade:	6.9%

These goals are applicable to all of the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a) and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs (OFCCP) within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this notice and in the contract resulting from this solicitation, the "covered area" is:

State	County	City

DISTRACTED DRIVING

Reference: Executive Order 13513
DOT Order 3902.10

In accordance with Executive Order 13513, "Federal Leadership on Reducing Text Messaging While Driving", (10/1/2009) and DOT Order 3902.10, "Text Messaging While Driving", (12/30/2009), the Federal Aviation Administration encourages recipients of Federal grant funds to adopt and enforce safety policies that decrease crashes by distracted drivers, including policies to ban text messaging while driving when performing work related to a grant or subgrant.

In support of this initiative, the Owner encourages the Contractor to promote policies and initiatives for its employees and other work personnel that decrease crashes by distracted drivers, including policies that ban text messaging while driving motor vehicles while performing work activities associated with the project. The Contractor must include the substance of this clause in all sub-tier contracts exceeding $10,000 that involve driving a motor vehicle in performance of work activities associated with the project.

EQUAL EMPLOYMENT OPPORTUNITY (EEO)

Reference: 2 CFR Part 200, Appendix II(C)
41 CFR § 60-1.4
41 CFR § 60-4.3
Executive Order 11246

Equal Opportunity Clause

During the performance of this contract, the Contractor agrees as follows:

(1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, sexual orientation, gender identify, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff, or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

(3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other

employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

(4) The Contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer, advising the labor union or workers' representative of the Contractor's commitments under this section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(5) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any such rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(8) The Contractor will include the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions, including sanctions for noncompliance*: Provided,* however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

Standard Federal Equal Employment Opportunity Construction Contract Specifications

1. As used in these specifications:

   a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

   b. "Director" means Director, Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, or any person to whom the Director delegates authority;

   c. "Employer identification number" means the Federal social security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;

d. "Minority" includes:

(1) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race);

(3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(4) American Indian or Alaskan native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR part 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through 7p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in a geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

    a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

    b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

    c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

    d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

    e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

    f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.;

by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with onsite supervisory personnel such superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other contractors and subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations, which assist in fulfilling one or more of their affirmative action obligations (7a through 7p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant may be asserted as fulfilling any one or more of its obligations under 7a through 7p of these specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.
9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).
10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, sexual orientation, gender identity, or national origin.
11. The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.
12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR part 60-4.8.
14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep

records. Records shall at least include for each employee, the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g. those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

PROHIBITION OF SEGREGATED FACILITIES

Reference: 2 CFR Part 200, Appendix II(C)
41 CFR Part 60-1

(a) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Employment Opportunity clause in this contract.

(b) "Segregated facilities," as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.

(c) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Employment Opportunity clause of this contract.

PROCUREMENT OF RECOVERED MATERIALS

Reference: 2 CFR § 200.323
2 CFR Part 200, Appendix II(J)
40 CFR Part 247
42 USC § 6901, et seq (Resource Conservation and Recovery Act (RCRA))

Contractor and subcontractor agree to comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, and the regulatory provisions of 40 CFR Part 247. In the performance of this contract and to the extent practicable, the Contractor and subcontractors are to use products containing the highest percentage of recovered materials for items designated by the Environmental Protection Agency (EPA) under 40 CFR Part 247 whenever:

a) The contract requires procurement of $10,000 or more of a designated item during the fiscal year; or

b) The contractor has procured $10,000 or more of a designated item using Federal funding during the previous fiscal year.

The list of EPA-designated items is available at www.epa.gov/smm/comprehensive-procurement-guidelines-construction-products.

Section 6002(c) establishes exceptions to the preference for recovery of EPA-designated products if the contractor can demonstrate the item is:

a) Not reasonably available within a timeframe providing for compliance with the contract performance schedule;

b) Fails to meet reasonable contract performance requirements; or

c) Is only available at an unreasonable price.

TERMINATION OF CONTRACT

Reference: 2 CFR Part 200, Appendix II(B)
FAA Advisory Circular 150/5370-10, Section 80-09

Termination for Convenience (Construction & Equipment Contracts)

The Owner may terminate this contract in whole or in part at any time by providing written notice to the Contractor. Such action may be without cause and without prejudice to any other right or remedy of Owner. Upon receipt of a written notice of termination, except as explicitly directed by the Owner, the Contractor shall immediately proceed with the following obligations regardless of any delay in determining or adjusting amounts due under this clause:

1. Contractor must immediately discontinue work as specified in the written notice.
2. Terminate all subcontracts to the extent they relate to the work terminated under the notice.
3. Discontinue orders for materials and services except as directed by the written notice.
4. Deliver to the Owner all fabricated and partially fabricated parts, completed and partially completed work, supplies, equipment and materials acquired prior to termination of the work, and as directed in the written notice.
5. Complete performance of the work not terminated by the notice.
6. Take action as directed by the Owner to protect and preserve property and work related to this contract that Owner will take possession.

Owner agrees to pay Contractor for:

1. Completed and acceptable work executed in accordance with the contract documents prior to the effective date of termination;
2. Documented expenses sustained prior to the effective date of termination in performing work and furnishing labor, materials, or equipment as required by the contract documents in connection with uncompleted work;

3. Reasonable and substantiated claims, costs, and damages incurred in settlement of terminated contracts with Subcontractors and Suppliers; and
4. Reasonable and substantiated expenses to the Contractor directly attributable to Owner's termination action.

Owner will not pay Contractor for loss of anticipated profits or revenue or other economic loss arising out of or resulting from the Owner's termination action.

The rights and remedies this clause provides are in addition to any other rights and remedies provided by law or under this contract.

Termination for Cause (Construction)

Section 80-09 of FAA Advisory Circular 150/5370-10 establishes standard language for conditions, rights, and remedies associated with Owner termination of this contract for cause due to default of the Contractor.

Termination for Cause (Equipment)

The Owner may, by written notice of default to the Contractor, terminate all or part of this Contract for cause if the Contractor:

1. Fails to begin the Work under the Contract within the time specified in the Notice- to-Proceed;
2. Fails to make adequate progress as to endanger performance of this Contract in accordance with its terms;
3. Fails to make delivery of the equipment within the time specified in the Contract, including any Owner approved extensions;
4. Fails to comply with material provisions of the Contract;
5. Submits certifications made under the Contract and as part of their proposal that include false or fraudulent statements; or
6. Becomes insolvent or declares bankruptcy.

If one or more of the stated events occur, the Owner will give notice in writing to the Contractor and Surety of its intent to terminate the contract for cause. At the Owner's discretion, the notice may allow the Contractor and Surety an opportunity to cure the breach or default.

If within ten (10) days of the receipt of notice, the Contractor or Surety fails to remedy the breach or default to the satisfaction of the Owner, the Owner has authority to acquire equipment by other procurement action. The Contractor will be liable to the Owner for any excess costs the Owner incurs for acquiring such similar equipment.

Payment for completed equipment delivered to and accepted by the Owner shall be at the Contract price. The Owner may withhold from amounts otherwise due the Contractor for such completed equipment, such sum as the Owner determines to be necessary to protect the Owner against loss because of Contractor default.

Owner will not terminate the Contractor's right to proceed with the work under this clause if the delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such acceptable causes include: acts of God, acts of the Owner, acts of another Contractor in the performance of a contract with

the Owner, and severe weather events that substantially exceed normal conditions for the location.

If, after termination of the Contractor's right to proceed, the Owner determines that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the Owner issued the termination for the convenience the Owner.

The rights and remedies of the Owner in this clause are in addition to any other rights and remedies provided by law or under this contract.

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $25,000

DEBARMENT AND SUSPENSION

Reference: 2 CFR Part 180 (Subpart B)
2 CFR Part 200, Appendix II(H)
2 CFR Part 1200
DOT Order 4200.5
Executive Orders 12549 and 12689

Certification of Offeror/Bidder Regarding Debarment

By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

Certification of Lower Tier Contractors Regarding Debarment

The successful bidder, by administering each lower tier subcontract that exceeds $25,000 as a "covered transaction", must confirm each lower tier participant of a "covered transaction" under the project is not presently debarred or otherwise disqualified from participation in this federally-assisted project. The successful bidder will accomplish this by:

1. Checking the System for Award Management at website: http://www.sam.gov.
2. Collecting a certification statement similar to the Certification of Offeror /Bidder Regarding Debarment, above.
3. Inserting a clause or condition in the covered transaction with the lower tier contract.

If the Federal Aviation Administration later determines that a lower tier participant failed to disclose to a higher tier participant that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedies, including suspension and debarment of the non-compliant participant.

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $100,000

CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

Reference: 2 CFR Part 200, Appendix II(E)
2 CFR § 5.5(b)
40 USC § 3702
40 USC § 3704

1. Overtime Requirements.

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic, including watchmen and guards, in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; Liability for Unpaid Wages; Liquidated Damages.

In the event of any violation of the clause set forth in paragraph (1) of this clause, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this clause, in the sum of $29 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this clause.

3. Withholding for Unpaid Wages and Liquidated Damages.

The Federal Aviation Administration (FAA) or the Owner shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this clause.

4. Subcontractors.

The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs (1) through (4) and also a clause requiring the subcontractor to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this clause.

LOBBYING AND INFLUENCING FEDERAL EMPLOYEES

Reference: 31 USC § 1352 – Byrd Anti-Lobbying Amendment
2 CFR Part 200, Appendix II(I)
49 CFR Part 20, Appendix A

Certification Regarding Lobbying

The Bidder or Offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Bidder or Offeror, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $150,000

CLEAN AIR AND WATER POLLUTION CONTROL

References: 2 CFR Part 200, Appendix II(G)
42 USC § 7401, et seq
33 USC § 1251, et seq

Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Clean Air Act (42 USC §§ 7401-7671q) and the Federal Water Pollution Control Act as amended (33 USC §§ 1251-1387). The Contractor agrees to report any violation to the Owner immediately upon discovery. The Owner assumes responsibility for notifying the Environmental Protection Agency (EPA) and the Federal Aviation Administration.

The Contractor must include this requirement in all subcontracts that exceed $150,000.

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $250,000

BREACH OF CONTRACT TERMS

Reference: 2 CFR § 200 Appendix II(A)

Any violation or breach of terms of this contract on the part of the Contractor or its subcontractors may result in the suspension or termination of this contract or such other action that may be necessary to enforce the rights of the parties of this agreement.

Owner will provide Contractor written notice that describes the nature of the breach and corrective actions the Contractor must undertake in order to avoid termination of the contract. Owner reserves the right to withhold payments to Contractor until such time the Contractor corrects the breach or the Owner elects to terminate the contract. The Owner's notice will identify a specific date by which the Contractor must correct the breach. Owner may proceed with termination of the contract if the Contractor fails to correct the breach by the deadline indicated in the Owner's notice.

The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder are in addition to, and not a limitation of, any duties, obligations, rights and remedies otherwise imposed or available by law.

DISADVANTAGED BUSINESS ENTERPRISE

Reference: 49 CFR Part 26

Solicitation Language (Solicitations that include a Contract Goal)

*Bid Information Submitted as a matter of **responsiveness**:*

The Owner's award of this contract is conditioned upon Bidder or Offeror satisfying the good faith effort requirements of 49 CFR § 26.53.

As a condition of responsiveness, the Bidder or Offeror must submit the following information with its proposal on the forms provided herein:

1) The names and addresses of Disadvantaged Business Enterprise (DBE) firms that will participate in the contract;
2) A description of the work that each DBE firm will perform;
3) The dollar amount of the participation of each DBE firm listed under (1);
4) Written statement from Bidder or Offeror that attests their commitment to use the DBE firm(s) listed under (1) to meet the Owner's project goal;
5) Written confirmation from each listed DBE firm that it is participating in the contract in the kind and amount of work provided in the prime contractor's commitment; and
6) If Bidder or Offeror cannot meet the advertised project DBE goal, evidence of good faith efforts undertaken by the Bidder or Offeror as described in appendix A to 49 CFR part 26. The documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract.

*Bid Information submitted as a matter of bidder **responsibility**:*

The Owner's award of this contract is conditioned upon Bidder or Offeror satisfying the good faith effort requirements of 49 CFR § 26.53.

As a condition of responsibility, every Bidder or Offeror must submit the following information on the forms provided herein within five days after bid opening.

1) The names and addresses of Disadvantaged Business Enterprise (DBE) firms that will participate in the contract;
2) A description of the work that each DBE firm will perform;
3) The dollar amount of the participation of each DBE firm listed under (1);
4) Written statement from Bidder or Offeror that attests their commitment to use the DBE firm(s) listed under (1) to meet the Owner's project goal;
5) Written confirmation from each listed DBE firm that it is participating in the contract in the kind and amount of work provided in the prime contractor's commitment; and
6) If Bidder or Offeror cannot meet the advertised project DBE goal, evidence of good faith efforts undertaken by the Bidder or Offeror as described in appendix A to 49 CFR part 26. The documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract.

Solicitation Language (Race/Gender Neutral Means)

The requirements of 49 CFR part 26 apply to this contract. It is the policy of the Owner to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract. The Owner encourages participation by all firms qualifying under this solicitation regardless of business size or ownership.

Prime Contracts (Contracts Covered by a DBE Program)

Contract Assurance (49 CFR § 26.13)

The Contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

1) Withholding monthly progress payments;
2) Assessing sanctions;
3) Liquidated damages; and/or
4) Disqualifying the Contractor from future bidding as non-responsible.

Prompt Payment (49 CFR § 26.29)

The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than thirty (30) calendar days from the receipt of each payment the prime contractor receives from Owner. The prime contractor agrees

further to return retainage payments to each subcontractor within thirty (30) calendar days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the Owner. This clause applies to both DBE and non-DBE subcontractors.

Termination of DBE Subcontracts (49 CFR § 26.53(f))

The prime contractor must not terminate a DBE subcontractor listed in response to the above *Solicitation Language (Solicitations that include a Contract Goal)* section (or an approved substitute DBE firm) without prior written consent of Owner. This includes, but is not limited to, instances in which the prime contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm.

The prime contractor shall utilize the specific DBEs listed to perform the work and supply the materials for which each is listed unless the contractor obtains written consent from the Owner. Unless the Owner's consent is provided, the prime contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the listed DBE.

The Owner may provide such written consent only if the Owner agrees, for reasons stated in the concurrence document, that the prime contractor has good cause to terminate the DBE firm. For purposes of this paragraph, good cause includes the circumstances listed in 49 CFR §26.53.

Before transmitting to the Owner its request to terminate and/or substitute a DBE subcontractor, the prime contractor must give notice in writing to the DBE subcontractor, with a copy to the Owner, of its intent to request to terminate and/or substitute, and the reason for the request.

The prime contractor must give the DBE five days to respond to the prime contractor's notice and advise the Owner and the contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why the Owner should not approve the prime contractor's action. If required in a particular case as a matter of public necessity (e.g., safety), the Owner may provide a response period shorter than five days.

In addition to post-award terminations, the provisions of this section apply to preaward deletions of or substitutions for DBE firms put forward by offerors in negotiated procurements.

CERTIFICATION THAT CONTRACTOR IS NOT EXCLUDED FROM STATE OR FEDERAL PROGRAMS

(This Certification MUST be notarized.)

The undersigned, an authorized representative of the Contractor, hereby warrants, represents and certified that the following statements are correct:

1. That the undersigned has the authority to execute this Certification on behalf of the Contractor; and
2. That the Contractor has not been rescinded or debarred from any Bidding, Contractual, Procurement and/or Non-procurement Programs or other such programs with the United States Government as identified by the U.S. General Services Administration Office of Acquisition Policy; and
3. That the Contractor has not been similarly rescinded or debarred from any bidding, contractual, procurement or other such programs of the State of Missouri.

The undersigned understands that these representations go to the essence of this bid and proposal and of any resulting contract, and that false statements with regard to, or actions in violation of, these representations at any time during the bidding process or performance of any other resulting contract, may constitute grounds for disqualification of any bid or proposal or termination of any contract.

CONTRACTOR

Name and address of CONTRACTOR

Ideker, Inc.
4614 South 40th Street
St. Joseph, MO 64503

Signature

Cody Phillips
Printed Name

Vice President
Title

Subscribed and sworn to before me this 21 day of March, 2023.

Notary Public

My Commission expires: 03/06/2023

CIJAY SMITH
Comm. Exp. 03/06/2026
NOTARY PUBLIC NOTARY SEAL #22010373
Buchanan County
STATE OF MISSOURI

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

SUPPLEMENTARY CONDITIONS

Project Number 62230566

Project Title Taxiway E and Taxiway J Rehabilitation

These Supplementary Conditions amend or supplement the General Conditions of the Construction Contract and other provisions of the Contract Documents as indicated below. All provisions that are not so amended or supplemented remain in full force and effect.

SC-4.02 Article 4, Paragraph 4.02, Subsurface and Physical Conditions; Subparagraphs A and B are supplemented as follows:

In the preparation of the Contract Documents, the following reports of explorations and tests of subsurface conditions at or contiguous to the Site of the Work were utilized:

1. Report dated February 25, 2022, prepared by TSI Geotechnical, Inc.; entitled Report of Subsurface Exploration and Geotechnical Engineering Evaluation, which is attached as part of the Bid Package and Contract Documents.

SC-4.06 Article 4, Paragraph 4.06, Asbestos, Lead-Based Paint, PCBs, Petroleum Waste or Radioactive Material, Subparagraphs A and B are supplemented as follows:

In the preparation of the Contract Documents, no reports of explorations and tests of any Hazardous Environmental Condition(s) at the Site of the Work have been prepared.

SC-5.04 B.1. Article 5, Paragraph 5.04, CONTRACTOR's Liability Insurance, Subparagraph B.1 is amended as follows:

With respect to insurance required by Paragraphs 5.04 A.3 through 5.04 A.5, the following additional individuals or entities shall be listed as additional insureds:

CITY – Kansas City Missouri
Design Professional – HNTB Corporation
Project Manager – Mallie Hare

SC-5.04 C.2 Article 5, Paragraph 5.04, CONTRACTOR's Liability Insurance, Subparagraph C.2 is amended by adding the following:

2.a. Individuals with an operational need for vehicular access to the Airport Operations Area (AOA) shall be required to obtain Commercial Automobile Liability Insurance with a limit of $5,000,000 combined single limit, covering owned, hired, and non-owned motor vehicles. Coverage provided shall be on an "any auto" basis and written on an "occurrence" basis. This insurance will be written on a Commercial Business Auto form, or acceptable equivalent, and will protect against claims arising out of the operation of motor vehicles on the Airport, as to acts done in connection with the Contract, by Contractor.

SC-5.06 A. Article 5, Paragraph 5.06, Property Insurance, is amended by deleting Subparagraph A and inserting the following:

SC-5.06 A. Article 5, Paragraph 5.06, Property Insurance, Paragraph A, is amended by adding the following after the first sentence:

Property Insurance on the Work at the Site shall be written with a deductible amount not to exceed $10,000.00.

SC-6.06 A.1 Article 6, Paragraph 6.06 Substitutes and "Or-Equal" Items, Paragraph A is amended by adding the following at the end of Paragraph A.1:

Proposed "or-equal" items must be submitted to CITY at least 7 days prior to Bid date at the following address:
601 Brasilia Avenue
Kansas City, Missouri 64153
Attn: Mallie Hare, Project Manager

Only Bidders may submit proposed "or-equal" items and such items must require no change in related Work. Acceptance by CITY of any proposed "or-equal" items will be made by Addendum only.

SC-6.06 A.2. Article 6, Paragraph 6.06 Substitutes and "Or-Equal" Items, Paragraph A is amended by adding the following at the end of Paragraph A.2:

Proposed substitute items must be submitted to CITY's Representative not later than 7 days prior to the time the item is to be incorporated into the Work. Only CONTRACTOR may submit proposed substitute items, and such items must be submitted to CITY's Representative on the standard City form 016300 - Substitution Request. Acceptance by CITY of any proposed substitute item will be made by Change Order.

SC-6.07 J Article 6, Paragraph 6.07, concerning Subcontractors, Suppliers and Others, is supplemented by adding Subparagraph J as follows:

CONTRACTOR shall perform with its own organization Work amounting to not less than 50% of the total Contract Price. “Its own organization” shall be construed to include only workers employed and paid by the CONTRACTOR and equipment owned or rented by the CONTRACTOR, with or without operators. Such term does not include employees or equipment of a subcontractor, assignee, or agent of the CONTRACTOR.

SC-6.10. Article 6, Paragraph 6.10, Compliance with Laws and Regulations, is amended by adding the following new Subparagraphs immediately following Subparagraph 6.10 I 2:

a. CONTRACTOR will be required to comply with wage rates as follows:

Missouri Wage Order No. XX; Platte County
Davis Bacon Wage Order No.

SC-6.10. Article 6, Paragraph 6.10, Compliance with Laws and Regulations, is amended by adding the following new Subparagraph immediately following Subparagraph 6.10 S:

T. Excavation Permit. CONTRACTOR shall secure from the Aviation Department Engineering Division a signed excavation permit showing the approximate location of known existing utilities in the area prior to any excavation. The Aviation Department does not guarantee that all utilities are shown and, therefore, the Contractor shall assume all risks in protecting and locating the utilities.

SC-6.11 Article 6, Paragraph 6.11, Taxes, is amended by adding the following sentence to Subparagraph 6.11 B:

B. Tax Compliance. The following subparagraphs apply if the Contract is over $160,000.00.

SC-6.12 Article 6, Paragraph 6.12, Use of Site and Other Areas, is amended by adding the following new Subparagraphs immediately following Subparagraph 6.12 D.:

1. Disposal of Waste Materials. Contractor shall remove all waste, trash or demolition debris generated by this contract from CITY's property on a daily basis and legally dispose of them.

   a. Contractor shall maintain a record of disposal methods and disposal sites.
   b. Contractor shall retain copies of dump receipts or other forms provided by licensed landfills or agreements with property owners on whose property waste materials are placed.
   c. Upon written request of the CITY, disposal records shall be made available to CITY. Records shall be made available to the CITY within 10 working days.

2. General: The Contractor shall maintain the premises and work areas in a clean and orderly manner. He shall perform intermediate cleanups, including the removal of dirt and debris from roadways as directed by the Engineer. Roadway pavement cleanliness must be maintained.

3. Periodic Cleanup: The Contractor shall make overall periodic cleanups at least once every day, and remove from Airport Property all rubbish and waste material resulting from construction operations. Construction debris shall not be stored nor will any ready mix concrete wash be permitted in construction area or in designated storage site. Such waste must be hauled off the Airport property daily.

4. Final Cleanup: The Contractor shall remove from the CITY's property and from all public and private property, at his own expense, all temporary structures, tools, and excess construction materials. The final cleanup shall be such that the CITY may occupy and use the completed project without further effort on its part.

SC-9.08 E. Article 9, Paragraph 9.08, Limitations on DESIGN PROFESSIONAL's Authority and Responsibilities, Subparagraph E is supplemented as follows:

DESIGN PROFESSIONAL's Consultant(s), resident Project representative and assistant(s) to the resident Project representative are the following:

Consultant(s): HNTB Corporation

Project Manager: Lynette Mellett, P.E.
Project Engineer: Matt Walsh, P.E.

SC-12.01 Article 12, Paragraph 12.01, Time of the Essence is amended by adding the following new Subparagraphs immediately following Subparagraph 12.01 A:

B. Starting and Completion

1. The Work to be performed under this Contract shall begin on the date specified in the written Notice to Proceed issued by the Director of Aviation, and the Work shall be substantially complete, in accordance with Section 00700 Paragraph 14.04, within the time allotted for each milestone listed below. Once the Work starts, CONTRACTOR shall continuously pursue completion of the Work.

Milestone	**Substantially Complete**
Phase 1	66 Calendar Days (Work Area A)
Phase 2	44 Calendar Days (Work Area A & B)
Phase 3	45 Calendar Days (Work Area B & C)

Overall: 155 Total Calendar Days

C. Liquidated Damages

1. If the Phase specific work is not substantially completed, in accordance with Section 00700 Paragraph 14.04, within the period stated in Section 00800 Paragraph 12.01 B.1, CONTRACTOR shall pay to CITY the amount of two thousand dollars ($2,000) as liquidated damages and not as a penalty for each Calendar Day until the Work is substantially complete. The amount of liquidated damages shall be deducted from any payments due or to become due CONTRACTOR.

2. If the Work is not completed and ready for final payment in accordance with Section 00700 Paragraph 14.07, within the period stated in Section 00800 Paragraph 12.01 B.2, CONTRACTOR shall pay to CITY the amount of two thousand dollars ($2,000) as liquidated damages and not as a penalty for each Calendar Day until the Work is completed and ready for final payment. The amount of liquidated damages shall be deducted from any payments due or to become due CONTRACTOR.

SC-14.02 A. Article 14, Paragraph 14.02, Application for Progress Payments, Subparagraph A is amended by deleting Item 2.b and adding the following:

b. a copy of the most recent Audit Report CONTRACTOR has submitted to CREO KC through the B2G on-line reporting system.

SC-14.02 A. Article 14, Paragraph 14.02, Application for Progress Payments, Subparagraph A is amended by deleting Item 3 and adding the following:

3. CITY shall make payments to CONTRACTOR monthly on or about the first day of each month. Payments to CONTRACTOR will be made on the basis of ninety percent (90%) of the value of the Work satisfactorily completed plus ninety percent (90%) of the value of properly stored and insured, unused materials on hand on the Site of the Work. CITY shall retain ten percent (10%) of each partial payment until completion and acceptance of the Work covered by the Contract and final payment is due. All Work covered by a payment becomes CITY's property, provided that the Work paid for remains the sole responsibility of CONTRACTOR until all terms and conditions of the Contract have been met.

SC-14.05 Article 14, Paragraph 14.05, Partial Utilization is amended by adding the following new Subparagraph A.3. immediately following Subparagraph 14.05 A.2:

3. CITY at any time may make a written request to CONTRACTOR to permit CITY to take over operation of any part of the Work although it is not substantially complete. A copy of the request will be sent to DESIGN PROFESSIONAL, and within a reasonable time thereafter CITY, CONTRACTOR and DESIGN PROFESSIONAL shall make an inspection of that part of the Work to determine its status of completion and will prepare a list of the items remaining to be completed or corrected thereon before final payment. If CONTRACTOR does not make written objection to CITY and DESIGN PROFESSIONAL that such part of the Work is not ready for separate operation by CITY, DESIGN PROFESSIONAL will finalize the list of items to be completed or corrected and will deliver such lists to CITY and CONTRACTOR. DESIGN PROFESSIONAL will also make a written recommendation as to the division of responsibilities pending final payment between CITY and CONTRACTOR with respect to security, operation, safety, maintenance, utilities, insurance, warranties and guarantees for that part of the Work, which recommendation will become binding upon CITY and CONTRACTOR at the time when CITY takes over such operation (unless they shall have otherwise agreed in writing and so informed DESIGN PROFESSIONAL). During such operation and prior to Substantial Completion of such part of the Work, CITY shall allow CONTRACTOR reasonable access to complete or correct items on said list and to complete other related Work.

"General Decision Number: MO20230001 03/17/2023

Superseded General Decision Number: MO20220001

State: Missouri

Construction Types: Heavy and Highway

Counties: Missouri Statewide.

HEAVY AND HIGHWAY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $16.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2023.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $12.15 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2023.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at http://www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/06/2023
1	01/27/2023
2	03/03/2023

3 03/17/2023

CARP0002-002 05/01/2022

ST. LOUIS COUNTY AND CITY

	Rates	Fringes
Carpenters	$ 39.94	19.50

CARP0005-006 05/01/2021

CASS (Richards-Gebauer AFB ONLY), CLAY, JACKSON, PLATTE AND RAY COUNTIES

	Rates	Fringes
Carpenters:		
CARPENTERS & LATHERS	$ 41.37	18.90
MILLWRIGHTS & PILEDRIVERS	$ 41.37	18.90

CARP0011-001 05/01/2022

	Rates	Fringes
Carpenter and Piledriver		
ADAIR, AUDRAIN (West of Hwy 19), BOONE, CALLAWAY, CHARITON, COLE, COOPER, HOWARD, KNOX,LINN, MACON, MILLER, MONITEAU,MONROE, OSAGE, PUTNAM, RANDOLPH, SCHUYLER, SHELBY AND SULLIVAN COUNTIES	$ 34.06	19.20
ATCHISON, ANDREW, BATES, CALDWELL, CARROLL,DAVIESS, DEKALB,GENTRY, GRUNDY, HARRISON, HENRY, HOLT, LIVINGSTON, MERCER, NODAWAY,ST. CLAIR, SALINE AND WORTH COUNTIES	$ 32.43	19.20
AUDRAIN (East of Hwy.19), RALLS, MARION, LEWIS, CLARK AND SCOTLAND COUNTIES	$ 34.07	19.20
BARRY, BARTON, CAMDEN, CEDAR, CHRISTIAN, DADE, DALLAS, DOUGLAS, GREENE, HICKORY,JASPER, LACLEDE, LAWRENCE, MCDONALD, NEWTON, OZARK, POLK, STONE, TANEY, VERNON, WEBSTER AND WRIGHT COUNTIES	$ 32.00	19.20
BENTON, MORGAN AND PETTIS	$ 32.48	19.20
BOLLINGER, BUTLER, CAPE GIRARDEAU, DUNKLIN, MISSISSIPPI, NEW MADRID, PEMISCOT, PERRY, STE. GENEVIEVE, SCOTT, STODDARD AND WAYNE COUNTIES	$ 33.90	19.20
BUCHANAN, CLINTON, JOHNSON AND LAFAYETTE COUNTIES	$ 33.20	19.20
CARTER, HOWELL, OREGON AND RIPLEY COUNTIES	$ 32.77	19.20
CRAWFORD, DENT, GASCONADE,		

IRON, MADISON, MARIES,
MONTGOMERY, PHELPS,
PULASKI, REYNOLDS, SHANNON
AND TEXAS COUNTIES.....$ 33.89 19.20
FRANKLIN COUNTY.....$ 37.59 19.20
JEFFERSON AND ST. CHARLES
COUNTIES.....$ 39.94 19.50
LINCOLN COUNTY.....$ 35.91 19.20
PIKE, ST. FRANCOIS AND
WASHINGTON COUNTIES.....$ 34.74 19.20
WARREN COUNTY.....$ 36.38 19.20

ELEC0001-002 07/17/2022

BOLLINGER, BUTLER, CAPE GIRARDEAU, CARTER, DUNKLIN, FRANKLIN, IRON, JEFFERSON, LINCOLN, MADISON, MISSISSIPPI, NEW MADRID, PEMISCOT, PERRY,REYNOLDS, RIPLEY, ST. CHARLES, ST. FRANCOIS, ST. LOUIS (City and County), STE. GENEVIEVE, SCOTT, STODDARD, WARREN, WASHINGTON AND WAYNE COUNTIES

	Rates	Fringes
Electricians.....	$ 43.56	29.10

ELEC0002-001 09/04/2022

ADAIR, AUDRAIN, BOONE, CALLAWAY, CAMDEN, CARTER, CHARITON, CLARK, COLE, COOPER, CRAWFORD, DENT, FRANKLIN, GASCONADE, HOWARD, HOWELL, IRON, JEFFERSON, KNOX, LEWIS, LINCON, LINN, MACON, MARIES, MARION, MILLER, MONITEAU, MONROE, MONTGOMERY, MORGAN, OREGON, OSAGE, PERRY, PHELPS, PIKE, PULASKI, PUTNAM, RALLS, RANDOLPH, REYNOLDS, RIPLEY, ST. CHARLES, ST. FRANCOIS, ST. LOUIS (City and County), STE. GENEVIEVE, SCHUYLER, SCOTLAND, SHANNON, SHELBY, SULLIVAN, TEXAS, WARREN AND WASHINGTON COUNTIES

	Rates	Fringes
Line Construction:		
Equipment Operator.....	$ 44.16	23.14
Groundman & Truck Driver....	$ 33.74	19.34
Lineman & Cable Splicer.....	$ 51.45	25.81

ELEC0053-004 08/01/2021

	Rates	Fringes
Line Construction: (ANDREW, ATCHINSON, BARRY, BARTON, BUCHANAN, CALDWELL, CEDAR, CHRISTIAN, CLINTON, DADE, DALLAS, DAVIES,, DEKALB, DOUGLAS, GENTRY, GREENE, GRUNDY, HARRISON, HICKORY, HOLT, JASPER, LACLEDE, LAWRENCE, LIVINGSTON, MCDONALD, MERCER, NEWTON, NODAWAY, OZARK, POLK, ST. CLAIR, STONE, TANEY, VERNON, WEBSTER, WORTH AND WRIGHT COUNTIES)		
Groundman Powderman.....	$ 33.58	18.34
Groundman.....	$ 31.33	17.60

Lineman Operator.....$ 45.60 22.48
Lineman.....$ 50.31 24.11
Line Construction; (BATES,
BENTON, CARROLL, CASS, CLAY,
HENRY, JACKSON, JOHNSON,
LAFAYETTE, PETTIS, PLATTE,
RAY AND SALINE COUNTIES)
Groundman Powderman.....$ 33.58 18.34
Groundman.....$ 31.33 17.60
Lineman Operator.....$ 45.60 22.48
Lineman.....$ 50.31 24.11

ELEC0095-001 06/01/2020

BARRY, BARTON, CEDAR, DADE, JASPER, LAWRENCE, MCDONALD, NEWTON, ST CLAIR, AND VERNON COUNTIES

	Rates	Fringes
Electricians:		
Cable Splicers	$ 25.40	12.19
Electricians	$ 27.43	17.44

ELEC0124-007 09/28/2021

BATES, BENTON, CARROLL, CASS, CLAY, COOPER, HENRY, JACKSON, JOHNSON, LAFAYETTE, MORGAN, PETTIS, PLATTE, RAY AND SALINE COUNTIES:

	Rates	Fringes
Electricians	$ 41.79	23.67

ELEC0257-003 03/01/2021

AUDRAIN (Except Cuivre Township), BOONE, CALLAWAY, CAMDEN, CHARITON, COLE, CRAWFORD, DENT, GASCONADE, HOWARD, MARIES, MILLER, MONITEAU, OSAGE, PHELPS AND RANDOLPH COUNTIES

	Rates	Fringes
Electricians:		
Cable Splicers	$ 30.42	16.085
Electricians	$ 34.60	16.38

ELEC0350-002 12/01/2022

ADAIR, AUDRAIN (East of Highway 19), CLARK, KNOX, LEWIS, LINN, MACON, MARION, MONROE, MONTGOMERY, PIKE, PUTNAM, RALLS, SCHUYLER, SCOTLAND, SHELBY AND SULLIVAN COUNTIES

	Rates	Fringes
Electricians	$ 35.50	19.94

ELEC0453-001 09/01/2022

	Rates	Fringes
Electricians:		
CHRISITAN, DALLAS,		

DOUGLAS, GREENE, HICKORY,
HOWELL, LACLEDE, OREGON,
OZARK, POLK, SHANNON,
WEBSTER and WRIGHT COUNTIES.$ 30.00 17.26
PULASKI and TEXAS COUNTIES..$ 35.29 26.40
STONE and TANEY COUNTIES....$ 25.88 16.45

ELEC0545-003 06/01/2022

ANDREW, BUCHANAN, CLINTON, DEKALB, ATCHISON, HOLT, MERCER, GENTRY, HARRISON, DAVIESS, GRUNDY, WORTH, LIVINGSTON, NODAWAY, AND CALDWELL COUNTIES

	Rates	Fringes
Electricians:.....	$ 36.00	16.39

ELEC0702-004 01/02/2023

BOLLINGER, BUTLER, CAPE GIRARDEAU, DUNKLIN, MADISON, MISSISSIPPI, NEW MADRID, PEMISCOT, SCOTT, STODDARD AND WAYNE COUNTIES

	Rates	Fringes
Line Construction:		
Groundman - Class A.....	$ 33.63	29%+8.35
Groundman-Equipment Operator Class II (all other equipment).....	$ 42.65	29%+8.35
Heavy-Equipment Operator Class I (all crawler type equipment D-4 and larger)...	$ 48.67	29%+8.35
Lineman.....	$ 59.34	29%+8.35

ENGI0101-001 05/01/2020

ANDREW, ATCHISON, BATES, BENTON, BUCHANAN, CALDWELL, CARROLL, CHARITON, CLINTON, COOPER, DAVIESS, DEKALB, GENTRY, GRUNDY, HARRISON, HENRY, HOLT, HOWARD, JOHNSON, LAFAYETTE, LINN, LIVINGSTON, MERCER, NODAWAY, PETTIS, SALINE, SULLIVAN AND WORTH COUNITES

	Rates	Fringes
Power equipment operators:		
GROUP 1.....	$ 34.73	18.20
GROUP 2.....	$ 34.33	18.20
GROUP 3.....	$ 32.33	18.20

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Asphalt roller operator, finish; asphalt paver and spreader; asphalt plant operator; auto grader or trimmer or sub-grader; backhoe; blade operator (all types); boilers - 2; booster pump on dredge; bulldozer operator; boring machine (truck or crane mounted); clamshell operator; concrete mixer paver; concrete plant operator; concrete pump operator; crane operator; derrick or derrick trucks; ditching machine; dragline operator; dredge engineman; dredge operator; drill cat with compressor mounted (self-contained) or similar type self- propelled rotary

drill (not air tract); drilling or boring machine (rotary-self-propelled); finishing machine operator; greaser; high loader-fork lift-skid loader (all types); hoisting engineer (2 active drums); locomotive operator (standard guage); mechanics and welders (field and plants); mucking machine operator; pile drive operator; pitman crane or boom truck (all types); push cat; quad track; scraper operators (all types); shovel operator; sideboom cats; side discharge spreader; skimmer scoop operators; slip form paver operator (CMI, Rex, Gomeco or equal); la tourneau rooter (all tiller types); tow boat operator; truck crane; wood and log chippers (all types).

GROUP 2: A-frame truck operator; articulated dump truck; back filler operator; boilers (1); chip spreader; churn drill operator; compressor; concrete mixer operator, skip loader; concrete saws (self-propelled); conveyor operator; crusher operator; distributor operator; elevating grader operator; farm tractor (all attachments); fireman rig; float operator; form grade operator; hoisting engine (one drum); maintenance operator; multiple compactor; pavement breaker, self-propelled hydra-hammer (or similar type); paymill operator; power shield; pumps; roller operator (with or without blades); screening and washing plant; self-propelled street broom or sweeper; siphons and jets; straw blower; stump cutting machine; siphons and jets; tank car heater operator (combination boiler and booster); welding machine; vibrating machine operator (not hand held); welding machine.

GROUP 3: (a) Oiler;
(b) Oiiler driver
(c) Mechanic.

HOURLY PREMIUMS:
THE FOLLOWING CLASSIFICATIONS SHALL RECEIVE ($ .25) ABOVE GROUP 1 RATE: Dragline operator - 3 yds. & over; shovel 3 yds. & over; clamshell 3 yds. & over; Crane, rigs or piledrivers, 100' of boom or over (incl. jib.), hoist - each additional active drum over 2 drums

THE FOLLOWING CLASSIFICATIONS SHALL RECEIVE ($ .50) ABOVE GROUP 1 RATE: Tandem scoop operator; crane, rigs or piledrivers 150' to 200' of boom (incl. jib.)

THE FOLLOWING CLASSIFICATIONS SHALL RECEIVE ($ .75) ABOVE GROUP 1 RATE: Crane rigs, or piledrivers 200 ft. of boom or over (including jib.)

ENGI0101-005 04/01/2022

CASS, CLAY, JACKSON,PLATTE AND RAY COUNTIES

	Rates	Fringes
Power equipment operators:		
GROUP 1	$ 38.42	20.44
GROUP 2	$ 37.38	20.44
GROUP 3	$ 32.91	20.44
GROUP 4	$ 36.26	20.44

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Asphalt roller operator, finish; asphalt paver and

spreader; asphalt plant operator; auto grader or trimmer or sub-grader; backhoe; blade operator (all types); boilers-2; booster pump on dredge; boring machine (truck or crane mounted); bulldozer operator; clamshell operator; concrete cleaning decontamination machine operator; concrete mixer paver; concrete plant operator; concrete pump operator; crane operator; derrick or derrick trucks; ditching machine; dragline operator; dredge engineman; dredge operator; drillcat with compressor mounted (self-contained) or similar type self propelled rotary drill (not air tract); drilling or boring machine (rotary - self-propelled); finishing machine operator; greaser; heavy equipment robotics operator/mechanic; horizontal directional drill operator; horizontal directional drill locator; loader-forklift - skid loader (all types); hoisting engineer (2 active drums); locomotive operator (standard guage); master environmental maintenance mechanic; mechanics and welders (field and plants); mucking machine operator; piledrive operator; pitman crane or boom truck (all types); push cat; quad-track; scraper operators (all types); shovel operator; side discharge spreader; sideboom cats; skimmer scoop operator; slip-form paver (CMI, REX, Gomaco or equal); la tourneau rooter (all tiller types); tow boat operator; truck crane; ultra high perssure waterjet cutting tool system operator/mechanic; vacuum blasting machine operator/mechanic; wood and log chippers (all types)

GROUP 2: ""A"" Frame truck operator; back filler operator; boilers (1); chip spreader;churn drill operator; concrete mixer operator, skip loader; concrete saws (self-propelled); conveyor operator; crusher operator; distributor operator; elevating grader operator; farm tractor (all attachments); fireman rig; float operator; form grader operator; hoisting engine (1 drum); maintenance operator; multiple compactor; pavement breaker, self-propelled hydra- hammer (or similar type); power shield; paymill operator; pumps; siphons and jets; stump cutting machine; tank car heater operator (combination boiler and booster); compressor; roller operator (with or without blades); screening and washing plant; self-propelled street broom or sweeper; straw blower; tank car heater operator (combination boiler and booster); vibrating machine operator (not hand held)

GROUP 3: Oilers

GROUP 4: Oiler Driver (All Types)

FOOTNOTE:
HOURLY PREMIUMS FOLLOWING CLASSIFICATIONS SHALL RECEIVE ($1.00) ABOVE GROUP 1 RATE:
Clamshells - 3 yd. capacity or over; Cranes or rigs, 80 ft. of boom or over (including jib); Draglines, 3 yd. capacity or over;
Piledrivers 80 ft. of boom or over (including jib);
Shovels & backhoes, 3 yd. capacity or over.

ENGI0101-022 05/01/2019

BARRY, BARTON, CAMDEN, CEDAR, CHRISTIAN, DADE, DALLAS, DOUGLAS, GREENE, HICKORY, JASPER, LACLEDE, LAWRENCE, MCDONALD, NEWTON, OZARK, POLK, ST. CLAIR, STONE, TANEY, VERNON, WEBSTER AND WRIGHT COUNTIES and CITY OF SPRINGFIELD

	Rates	Fringes
Power equipment operators:		
GROUP 1	$ 31.72	14.88
GROUP 2	$ 31.37	14.88
GROUP 3	$ 31.17	14.88
GROUP 4	$ 29.12	14.88

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Asphalt finishing machine & trench widening spreader; asphalt plant console operator; autograder; automatic slipform paver; backhoe; blade operator - all types; boat operator - tow; boilers-2; central mix concrete plant operator; clamshell operator; concrete mixer paver; crane operator; derrick or derrick trucks; ditching machine; dozer operator; dragline operator; dredge booster pump; dredge engineman; dredge operator; drill cat with compressor mounted on cat; drilling or boring machine rotary self-propelled; highloader; hoisting engine - 2 active drums; launch hammer wheel; locomotive operator; - standard guage; mechanic and welders; mucking machine; off-road trucks; piledriver operator; pitman crane operator; push cat operator; quad trac; scoop operator - all types; shovel operator; sideboom cats; skimmer scoop operators; trenching machine operator; truck crane.

GROUP 2: A-frame; asphalt hot-mix silo; asphalt plant fireman (drum or boiler); asphalt plant man; asphalt plant man; asphalt plant mixer operator; asphalt roller operator; backfiller operator; barber-greene loader; boat operator (bridges and dams); chip spreader; concrete mixer operator - skip loader; concrete plant operator; concrete pump operator; crusher operator; dredge oiler; elevating grader operator; fork lift; greaser-fleet; hoisting engine - 1; locomotive operator - narrow gauge; multiple compactor; pavement breaker; powerbroom - self-propelled; power shield; rooter; side discharge concrete spreader; slip form finishing machine; stumpcutter machine; throttle man; tractor operator (over 50 h.p.); winch truck.

GROUP 3: Boilers - 1; chip spreader (front man); churn drill operator; clef plane operator; concrete saw operator (self-propelled); curb finishing machine; distributor operator; finishing machine operator; flex plane operator; float operator; form grader operator; pugmill operator; roller operator, other than high type asphalt; screening & washing plant operator; siphons & jets; sub-grading machine operator; spreader box operator, self-propelled (not asphalt); tank car heater operator (combination boiler & booster); tractor operator (50 h.p. or less); Ulmac, Ulric or similar spreader; vibrating machine operator, not hand;

GROUP 4: Grade checker; Oiler; Oiler-Driver

HOURLY PREMIUMS:

The following classifications shall receive $ .25 above GROUP 1 rate:
Clamshells - 3 yds. or over; Cranes - Rigs or Piledrivers, 100 ft. of boom or over (including jib);
Draglines - 3 yds. or over; Hoists - each additional active drum over 2 drums; Shovels - 3 yds. or over;

The following classifications shall receive $ .50 above GROUP 1 rate:
Tandem scoop operator; Cranes - Rigs or Piledrivers, 150 ft. to 200 ft. of boom (including jib); Tandem scoop.

The following classifications shall receive $ .75 above GROUP 1 rate:
Cranes - Rigs or Piledrivers, 200 ft. of boom or over (including jib.).

ENGI0513-004 05/05/2022

FRANKLIN, JEFFERSON, LINCOLN, ST CHARLES, AND WARREN COUNTIES

	Rates	Fringes
Power equipment operators:		
GROUP 1	$ 38.36	28.93
GROUP 2	$ 38.36	28.93
GROUP 3	$ 37.06	28.93
GROUP 4	$ 36.61	28.93

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Backhoe, Cable; Backhoe, Hydraulic (2 cu yds bucket and under regardless of attachment, one oiler for 2 or 3, two oilers for 4 through 6); Backhoe, Hydraulic over 2 cu yds; Cableway; Crane, Crawler or Truck; Crane, Hydraulic - Truck or Cruiser mounted, 16 tons and over; Crane, Locomotive; crane with boom including jib over 100 ft from pin to pin; Crane using rock socket tool; Derrick, Steam; Derrick Car and Derrick Boat; Dragline, 7 cu yds and over; Dredge; Gradall, Crawler or tire mounted; Locomotive, Gas, Steam & other powers; Pile Driver, Land or Floating; Scoop, Skimmer; Shovel, Power (Electric, Gas, Steam or other powers); Shovel, Power (7 cu yds and over); Switch Boat; Whirley; Air Tugger with air compressor; Anchor Placing Barge; Asphalt Spreaker; Athey Force Feeder Loader, self-propelled; Backfilling Machine; Boat Operator - Push Boat or Tow Boat (job site); Boiler, High Pressure Breaking in Period; Boom Truck, Placing or Erecting; Boring Machine, Footing Foundation; Bullfloat; Cherry Picker; Combination Concrete Hoist and Mixer (such as Mixermobile); Compressor, Two 125 CFM and under; Compressor, Two through Four over 125 CFM; Compressor when operator runs throttle; Concrete Breaker (Truck or Tractor mounted); Concrete Pump (such as Pumpcrete machine); Concrete Saw (self-propelled); Concrete Spreader; Conveyor, Large (not selfpropelled) hoisting or moving brick and concrete into, or into and on floor level, one or both; Crane, Cimbing (such as Linden); Crane, Hydraulic - Rough Terrain, self-propelled; Crane, Hydraulic - Truck or Cruiser mounted - under 16 tons; Drilling machine - Self-powered, used for earth or rock drilling or boring (wagon drills and any hand drills obtaining power from other souces including concrete breakers, jackhammers and Barco equipmnet no engineer required); Elevating Grader; Engine Man, Dredge; Excavator or Powerbelt Machine; Finishing Machine, self- propelled oscillating screed; Forklift; Generators, Two through Six 30 KW or over; Grader, Road with power blade; Greaser; Highlift; Hoist, Concrete and Brick (Brick cages or concrete skips operating or on tower, Towermobile, or similar equipment); Hoist, Three or more drums in use; Hoist, Stack; Hydro-Hammer;

Lad-A-Vator, hoisting brick or concrete; Loading Machine such as Barber-Greene; Mechanic on job site

GROUP 2: Air Tugger with plant air; Boiler (for power or heating shell of building or temporary enclosures in connection with construction work); Boiler, Temporary; Compressor, One over 125 CFM; Compressor, truck mounted; Conveyor, Large (not self- propelled); Conveyor, Large (not self- propelled) moving brick and concrete (distributing) on floor level; Curb Finishing Machine; Ditch Paving Machine; Elevator (outside); Endless Chain Hoist; Fireman (as required); Form Grader; Hoist, One Drum regardless of size (except brick or concrete); Lad-A-Vator, other hoisting; Manlift; Mixer, Asphalt, over 8 cu ft capacity; Mixer, one bag capacity or less; Mixer, without side loader, two bag capacity or more; Mixer, with side loader, regardless of size, not Paver; Mud Jack (where mud jack is used in conjenction with an air compressor, operator shall be paid $ .55 per hour in addition to his basic hourly rate for covering both operations); Pug Mill operator; Pump, Sump - self powered, automatic controlled over 2""; Scissor Lift (used for hoisting); Skid Steer Loader; Sweeper, Street; Tractor, small wheel type 50 HP and under with grader blade and similar equipment; Welding Machine, One over 400 amp; Winch, operating from truck

GROUP 3: Boat operator - outboard motor, job site; Conveyors (such as Con-Vay-It) regardless of how used; Elevator (inside); Heater operator, 2 through 6; Sweeper, Floor

GROUP 4: Crane type

HOURLY PREMIUMS:

Backhoe, Hydraulic 2 cu yds or less without oiler - $2.00;
Crane,climbing (such as Linden) - $.50;
Crane, Pile Driving and Extracting - $ .50
Crane with boom (including job) over
100 ft from pin to pin - add $.01 per foot
to maximum of $4.00);
Crane, using rock socket tool - $ .50;
Derrick, diesel, gas or electric hoisting material
and erecting steel (150 ft or more above ground) - $ .50;
Dragline, 7 cu yds and over - $ .50;
Hoist, Three or more drums in use - $ .50;
Scoop, Tandem - $.50;
Shovel, Power - 7 cu yds and over - $ .50;
Tractor, Tandem Crawler - $ .50;
Tunnel, man assigned to work in tunnel or
tunnel shaft - $ .50;
Wrecking, when machines are working on
second floor or higher - $ .50

ENGI0513-006 05/01/2022

ADAIR, AUDRAIN, BOLLINGER, BOONE, BUTLER, CALLAWAY, CAPE GIRARDEAU, CARTER, CLARK, COLE, CRAWFORD, DENT, DUNKLIN, GASCONADE, HOWELL, IRON, KNOX, LEWIS, MACON, MADISON, MARIES, MARION, MILLER, MISSISSIPPI, MONITEAU, MONROE, MONTGOMERY, MORGAN, NEW MADRID, OREGON, OSAGE, PEMISCOT, PERRY, PHELPS, PIKE, PULASKI, PUTNAM, RALLS, RANDOLPH, REYNOLDS, RIPLEY, ST. FRANCOIS, STE. GENEVIEVE, SCHUYLER, SCOTLAND, SCOTT, SHANNON, SHELBY, STODDARD, TEXAS, WASHINGTON, AND WAYNE COUNTIES

	Rates	Fringes
Power equipment operators:		
GROUP 1	$ 33.24	28.75
GROUP 2	$ 32.89	28.75
GROUP 3	$ 32.69	28.75
GROUP 4	$ 29.04	28.75

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Asphalt finishing machine & trench widening spreader, asphalt plant console operator; autograder; automatic slipform paver; back hoe; blade operator - all types; boat operator tow; boiler two; central mix concrete plant operator; clam shell operator; concrete mixer paver; crane operator; derrick or derrick trucks; ditching machine; dozer operator; dragline operator; dredge booster pump; dredge engineman; dredge operator; drill cat with compressor mounted on cat; drilling or boring machine rotary self-propelled; highloader; hoisting engine 2 active drums; launchhammer wheel; locomotive operator standrad guage; mechanics and welders; mucking machine; piledriver operator; pitman crane operator; push cat operator; guad-trac; scoop operator; sideboom cats; skimmer scoop operator; trenching machine operator; truck crane, shovel operator.

GROUP 2: A-Frame; asphalt hot-mix silo; asphalt roller operator asphalt plant fireman (drum or boiler); asphalt plant man; asphalt plant mixer operator; backfiller operator; barber-greene loader; boat operator (bridge & dams); chip spreader; concrete mixer operator skip loader; concrete plant operator; concrete pump operator; dredge oiler; elevating graded operator; fork lift; grease fleet; hoisting engine one; locomotive operator narrow guage; multiple compactor; pavement breaker; powerbroom self-propelled; power shield; rooter; slip-form finishing machine; stumpcutter machine; side discharge concrete spreader; throttleman; tractor operator (over 50 hp); winch truck; asphalt roller operator; crusher operator.

GROUP 3: Spreader box operator, self-propelled not asphalt; tractor operator (50 h.p. or less); boilers one; chip spreader (front man); churn drill operator; compressor over 105 CFM 2-3 pumps 4"" & over; 2-3 light plant 7.5 KWA or any combination thereof; clef plane operator; compressor maintenance operator 2 or 3; concrete saw operator (self-propelled); curb finishing mancine; distributor operator; finishing machine operator; flex plane operator; float operator; form grader operator; pugmill operator; riller operator other than high type asphalt; screening & washing plant operator; siphons & jets; subgrading machine operator; tank car heater (combination boiler & booster); ulmac, ulric or similar spreader; vibrating machine operator; hydrobroom.

GROUP 4: Oiler; grout machine; oiler driver; compressor over 105 CFM one; conveyor operator one; maintenance operator; pump 4"" & over one.

FOOTNOTE: HOURLY PREMIUMS

Backhoe hydraulic, 2 cu. yds. or under Without oiler - $2.00
Certified Crane Operator - $1.50;

Certified Hazardous Material Operator $1.50;
Crane, climbing (such as Linden) - $0.50;
Crane, pile driving and extracting - $0.50;
Crane, with boom (including jib) over 100' from pin to pin add $0.01 per foot to maximum of $4.00;
Crane, using rock socket tool - $0.50;
Derrick, diesel, gas or electric, hoisting material and erecting steel (150' or more above the ground) - $0.50;
Dragline, 7 cu. yds, and over - $0.50;
Hoist, three or more drums in use - $0.50; Scoop, Tandem - $0.50;
Shovel, power - 7 cu. yds. or more - $0.50;
Tractor, tandem crawler - $0.50;
Tunnel, man assigned to work in tunnel or tunnel shaft - $0.50;
Wrecking, when machine is working on second floor or higher - $0.50;

ENGI0513-007 05/05/2022

ST. LOUIS CITY AND COUNTY

	Rates	Fringes
Power equipment operators:		
GROUP 1	$ 38.36	28.93
GROUP 2	$ 38.36	28.93
GROUP 3	$ 37.06	28.93
GROUP 4	$ 36.61	28.93

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Backhoe, cable or hydraulic; cableway; crane crawler or truck; crane, hydraulic-truck or cruiser mounted 16 tons & over; crane locomotive; derrick, steam; derrick car & derrick boat; dragline; dredge; gradall, crawler or tire mounted; locomotive, gas, steam & other powers; pile driver, land or floating; scoop, skimmer; shovel, power (steam, gas, electric or other powers); switch boat; whirley.

GROUP 2: Air tugger w/air compressor; anchor-placing barge; asphalt spreader; athey force feeder loader (self-propelled); backfilling machine; backhoe-loader; boat operator-push boat or tow boat (job site); boiler, high pressure breaking in period; boom truck, placing or erecting; boring machine, footing foundation; bull- float; cherry picker; combination concrete hoist & mixer (such as mixer mobile); compressor (when operator runs throttle); concrete breaker (truck or tractor mounted); concrete pump, such as pump-crete machine; concrete saw (self-propelled), concrete spreader; conveyor, large (not self-propelled), hoisting or moving brick and concrete into, or into and on floor level, one or both; crane, hydraulic-rough terrain, self-propelled; crane hydraulic-truck or cruiser mounted-under 16 tons; drilling machines, self-powered use for earth or rock drilling or boring (wagon drills nd any hand drills obtaining power from other sources including concrete breakers, jackhammers and barco equipment-no engineer required); elevating grader; engineman, dredge; excavator or powerbelt machine; finishing machine, self-propelled oscillating screed; forklift; grader, road with power blade; highlift. greaser; hoist, stack, hydro-hammer; loading machine (such as barber-greene);

machanic, on job site; mixer, pipe wrapping machines; plant asphalt; plant, concrete producing or ready-mix job site; plant heating-job site; plant mixing-job site; plant power, generating-job site; pumps, two through six self-powered over 2""; pumps, electric submersible, two through six, over 4""; quad-track; roller, asphalt, top or sub-grade; scoop, tractor drawn; spreader box; sub-grader; tie tamper; tractor-crawler, or wheel type with or without power unit, power take-offs and attachments regardless of size; trenching machine; tunnel boring machine; vibrating machine automatic, automatic propelled; welding machines (gasoline or diesel) two through six; well drilling machine

GROUP 3: Conveyor, large (not self-propelled); conveyor, large (not self-propelled) moving brick and concrete distributing) on floor level; mixer two or more mixers of one bag capacity or less; air tugger w/plant air; boiler, for power or heating on construction projects; boiler, temporary; compressor (mounted on truck; curb finishing machine; ditch paving machine; elevator; endless chain hoist; form grader; hoist, one drum regardless of size; lad-a-vator; manlift; mixer, asphalt, over 8 cu. ft. capacity, without side loader, 2 bag capacity or more; mixer, with side loader, regardless of size; pug mill operator; pump, sump-self-powered, automatic controlled over 2"" during use in connection with construction work; sweeper, street; welding machine, one over 400 amp.; winch operating from truck; scissor lift (used for hoisting); tractor, small wheel type 50 h.p. & under with grader blade & similar equipment; Oiler on dredge and on truck crane.

GROUP 4: Boat operator-outboard motor (job site); conveyor (such as con-vay-it) regardless of how used; sweeper, floor

HOURLY PREMIUMS:

Backhoe, hydraulic 2 cu. yds. or under without oiler	$2.00
Certified Crane Operator	1.50
Certified Hazardous Material Operator	1.50
Crane, climbing (such as Linden)	.50
Crane, pile driving and extracting	.50
Crane, with boom (including jib) over 100' (from pin to pin) add $.01 per foot to maximum of	4.00
Crane, using rock socket tool	.50
Derrick, diesel, gas or electric, hoisting material and erecting steel (150' or more above ground)	.50
Dragline, 7 cu. yds. and over	.50
Hoist, three (3) or more drums in use	.50
Scoop, Tandem	.50
Shovel, power - 7 cu. yds. or more	.50
Tractor, tandem crawler	.50
Tunnel, man assigned to work in tunnel or tunnel shaft	.50
Wrecking, when machine is working on second floor or higher	.50

IRON0010-012 04/01/2022

	Rates	Fringes
Ironworkers:		
ANDREW, BARTON, BENTON,		

CAMDEN, CEDAR, CHARITON,
CHRISTIAN, COOPER, DADE,
DALLAS, DAVIESS, DE KALB,
GENTRY, GREENE, GRUNDY,
HARRISON, HICKORY, HOLT,
HOWARD, LACLEDE, LINN,
LIVINGSTON, MERCER,
MONITEAU, MORGAN, NODAWAY,
PETTIS, POLK, PUTNAM,
RANDLOPH, ST. CLAIR,
SULLIVAN, TANEY, VERNON,
WEBSTER, WRIGHT and WORTH
Counties and portions of
ADAIR, BOONE, MACON,
MILLER and RANDOLPH
Counties.....$ 32.50 32.68
ATCHISON, BATES, BUCHANAN,
CALDWELL, CARROLL, CASS,
CLAY, CLINTON, HENRY,
JACKSON, JOHNSON,
LAFAYETTE, PETTIS, PLATTE,
SALINE, AND RAY COUNTIES....$ 35.50 32.68

IRON0321-002 08/01/2022

DOUGLAS, HOWELL and OZARK COUNTIES

	Rates	Fringes
Ironworker.....	$ 23.50	19.96

IRON0396-004 08/04/2021

ST. LOUIS (City and County), ST. CHARLES, JEFFERSON, IRON, FRANKLIN, LINCOLN, WARREN, WASHINGTON, ST. FRANCOIS, STE. GENEVIEVE, and REYNOLDS Counties; and portions of MADISON, PERRY, BOLLINGER, WAYNE, and CARTER Counties

	Rates	Fringes
Ironworker.....	$ 36.71	28.96

IRON0396-009 08/04/2021

AUDRAIN, CALLAWAY, COLE, CRAWFORD, DENT, GASCONADE, MARIES, MONTGOMERY, OSAGE, PHELPS, PIKE, PULASKI, TEXAS and WRIGHT Counties; and portions of BOONE, CAMDEN, DOUGLAS, HOWELL, LACLEDE, MILLER, MONROE, OREGON, SHANNON and RALLS Counties

	Rates	Fringes
Ironworker.....	$ 32.24	28.96

IRON0577-005 06/01/2022

ADAIR, CLARK, KNOX, LEWIS, MACON, MARION, MONROE, RALLS, SCHUYLER, SCOTLAND, AND SHELBY COUNTIES

	Rates	Fringes
Ironworker.....	$ 28.80	25.05

IRON0584-004 06/01/2022

BARRY, JASPER, LAWRENCE, MCDONALD, NEWTON AND STONE Counties

	Rates	Fringes
Ironworkers:	$ 28.00	16.00

IRON0782-003 08/01/2022

CAPE GIRARDEAU, MISSISSIPPI, NEW MADRID, SCOTT, & STODDARD Counties; and portions of BOLLINGER, BUTLER, CARTER, DUNKLIN, MADISON, PEMISCOT, PERRY, RIPLEY, and WAYNE Counties

	Rates	Fringes
Ironworkers:		
Locks, Dams, Bridges and other major work on the Mississippi and Ohio River only	$ 35.13	28.27
All Other Work	$ 30.73	24.12

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* LABO0042-003 03/01/2023

ST. LOUIS (City and County)

	Rates	Fringes
LABORER		
Plumber Laborer	$ 36.65	17.12

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* LABO0042-005 03/01/2023

ST. LOUIS (City and County)

	Rates	Fringes
LABORER		
Dynamiter, Powderman	$ 36.65	17.12
Laborers, Flaggers	$ 36.65	17.12
Wrecking	$ 36.65	17.12

LABO0110-005 05/01/2022

Jefferson and Washington Counties

	Rates	Fringes
LABORER (Jefferson County)		
GROUP 1	$ 34.49	15.42
GROUP 2	$ 35.09	15.42
LABORER (Washington County)		
GROUP 1	$ 32.10	15.42
GROUP 2	$ 32.10	15.42

LABORERS CLASSIFICATIONS

GROUP 1 - General laborer-flagman, carpenter tenders; salamander Tenders; Dump Man; Ticket Takers; loading trucks under bins, hoppers, and conveyors; track man; cement handler; dump man on earth fill; georgie buggie man; material batch hopper man; spreader on asphalt machine; material mixer man (except on manholes); coffer dams;

riprap pavers rock, block or brick; scaffolds over ten feet not self-supported from ground up; skip man on concrete paving; wire mesh setters on concrete paving; all work in connection with sewer, water, gas, gasoling, oil, drainage pipe, conduit pipe, tile and duct lines and all other pipe lines; power tool operator; all work in connection with hydraulic or general dredging operations; form setters, puddlers (paving only); straw blower nozzleman; asphalt plant platform man; chuck tender; crusher feeder; men handling creosote ties or creosote materials; men working with and handling epoxy material; topper of standing trees; feeder man on wood pulverizers, board and willow mat weavers and cabelee tiers on river work; deck hands; pile dike and revetment work; all laborers working on underground tunnels less than 25 ft. where compressed air is not used; abutement and pier hole men working six (6) ft. or more below ground; men working in coffer dams for bridge piers and footing in the river; barco tamper; jackson or any other similar tamp; cutting torch man; liners, curb, gutters, ditch lines; hot mastic kettlemen; hot tar applicator; hand blade operator; mortar men or brick or block manholes; rubbing concrete, air tool operator under 65 lbs.; caulker and lead man; chain or concrete saw under 15 h.p.; signal Gan; Guard rail and sign erectors.

GROUP 2 - Skilled laborers - Vibrator man; asphalt raker; head pipe layer on sewer work; batterboard man on pipe and ditch work; cliff scalers working from bosun's chairs; scaffolds or platforms on dams or power plants over 10 ft. high; air tool operator over 65 lbs.; stringline man on concrete paving; sandblast man; laser beam man; wagon drill; churn drill; air track drill and all other similar type drills, gunite nozzle man; pressure grout man; screed man on asphalt; concrete saw 15 h.p. and over; grade checker; strigline man on electronic grade control; manhole builder; dynamite man; powder man; welder; tunnel man; waterblaster - 1000 psi or over; asbestos and/or hazardous waste removal and/or disposal

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LABO0579-005 05/01/2022

	Rates	Fringes
LABORER (ANDREW, ATCHISON, BUCHANAN, CALDWELL, CLINTON, DAVIESS, DEKALB, GENTRY, GRUNDY, HARRISON, HOLT, LIVINGSTON, MERCER, NODAWAY and WORTH COUNTIES.)		
GROUP 1	$ 28.29	16.34
GROUP 2	$ 28.64	16.34
LABORER (BARRY, BARTON, BATES, BENTON, CAMDEN, CARROLL, CEDAR, CHRISTIAN, DADE, DALLAS, DOUGLAS, GREENE, HENRY. HICKORY, JASPER, JOHNSON, LACLEDE, LAWRENCE, MCDONALD, MORGAN, NEWTON, OZARK, PETTIS, POLK, ST.CLAIR, SALINE, STONE, TANEY, VERNON, WEBSTER and WRIGHT COUNTIES)		
GROUP 1	$ 27.28	15.55

GROUP 2	$ 27.83	15.55
LABORER (LAFAYETTE COUNTY)		
GROUP 1	$ 28.83	15.80
GROUP 2	$ 29.18	15.80

LABORERS CLASSIFICATIONS

GROUP 1: General Laborers - Carpenter tenders; salamander tenders; loading trucks under bins; hoppers & conveyors; track men & all other general laborers; air tool operator; cement handler-bulk or sack; dump man on earth fill; georgie buggie man; material batch hopper man; material mixer man (except on manholes); coffer dams; riprap pavers - rock, block or brick; signal man; scaffolds over ten feet not self-supported from ground up; skipman on concrete paving; wire mesh setters on concrete paving; all work in connection with sewer, water, gas, gasoline, oil drainage pipe, conduit pipe, tile and duct lines and all other pipe lines; power tool operator, all work in connection with hydraulic or general dredging operations; puddlers (paving only); straw blower nozzleman; asphalt plant platform man; chuck tender; crusher feeder; men handling creosote ties or creosote materials; men working with and handling epoxy material or materials (where special protection is required); rubbing concrete; topper of standing trees; batter board man on pipe and ditch work; feeder man on wood pulverizers; board and willow mat weavers and cable tiers on river work; deck hands; pile dike and revetment work; all laborers working on underground tunnels less than 25 feet where compressed air is not used; abutment and pier hole men working six (6) feet or more below ground; men working in coffer dams for bridge piers and footings in the river; ditchliners; pressure groutmen; caulker; chain or concrete saw; cliffscalers working from scaffolds, bosuns' chairs or platforms on dams or power plants over (10) feet above ground; mortarmen on brick or block manholes; toxic and hazardous waste work.

GROUP 2: Skilled Laborers - Head pipe layer on sewer work; laser beam man; Jackson or any other similar tamp; cutting torch man; form setters; liners and stringline men on concrete paving, curb, gutters; hot mastic kettleman; hot tar applicator; sandblasting and gunite nozzlemen; air tool operator in tunnels; screed man on asphalt machine; asphalt raker; barco tamper; churn drills; air track drills and all similar drills; vibrator man; stringline man for electronic grade control; manhole builders-brick or block; dynamite and powder men; grade checker.

LABO0660-004 05/01/2022

Clark, Knox, Lewis, Marion, Pike, Ralls, Scotland, Shelby Counties

	Rates	Fringes
LABORER		
GROUP 1	$ 32.10	15.42
GROUP 2	$ 32.10	15.42

LABORERS CLASSIFICATIONS

GROUP 1 - General laborer-flagman, carpenter tenders;

salamander Tenders; Dump Man; Ticket Takers; loading trucks under bins, hoppers, and conveyors; track man; cement handler; dump man on earth fill; georgie buggie man; material batch hopper man; spreader on asphalt machine; material mixer man (except on manholes); coffer dams; riprap pavers rock, block or brick; scaffolds over ten feet not self-supported from ground up; skip man on concrete paving; wire mesh setters on concrete paving; all work in connection with sewer, water, gas, gasoling, oil, drainage pipe, conduit pipe, tile and duct lines and all other pipe lines; power tool operator; all work in connection with hydraulic or general dredging operations; form setters, puddlers (paving only); straw blower nozzleman; asphalt plant platform man; chuck tender; crusher feeder; men handling creosote ties or creosote materials; men working with and handling epoxy material; topper of standing trees; feeder man on wood pulverizers, board and willow mat weavers and cabelee tiers on river work; deck hands; pile dike and revetment work; all laborers working on underground tunnels less than 25 ft. where compressed air is not used; abutement and pier hole men working six (6) ft. or more below ground; men working in coffer dams for bridge piers and footing in the river; barco tamper; jackson or any other similar tamp; cutting torch man; liners, curb, gutters, ditch lines; hot mastic kettlemen; hot tar applicator; hand blade operator; mortar men or brick or block manholes; rubbing concrete, air tool operator under 65 lbs.; caulker and lead man; chain or concrete saw under 15 h.p.; signal Gan; Guard rail and sign erectors.

GROUP 2 - Skilled laborers - Vibrator man; asphalt raker; head pipe layer on sewer work; batterboard man on pipe and ditch work; cliff scalers working from bosun's chairs; scaffolds or platforms on dams or power plants over 10 ft. high; air tool operator over 65 lbs.; stringline man on concrete paving; sandblast man; laser beam man; wagon drill; churn drill; air track drill and all other similar type drills, gunite nozzle man; pressure grout man; screed man on asphalt; concrete saw 15 h.p. and over; grade checker; strigline man on electronic grade control; manhole builder; dynamite man; powder man; welder; tunnel man; waterblaster - 1000 psi or over; asbestos and/or hazardous waste removal and/or disposal

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LABO0660-006 06/01/2022

Lincoln, Montgomery, St Charles and Warren Counties

	Rates	Fringes
LABORER (Common or General).....	$ 35.91	15.42

LABO0662-001 05/01/2022

Callaway, Cole, Miller and Moniteau Counties

	Rates	Fringes
LABORER		
GROUP 1.....	$ 32.10	15.42
GROUP 2.....	$ 32.10	15.42

LABORERS CLASSIFICATIONS

GROUP 1 - General laborer-flagman, carpenter tenders; salamander Tenders; Dump Man; Ticket Takers; loading trucks under bins, hoppers, and conveyors; track man; cement handler; dump man on earth fill; georgie buggie man; material batch hopper man; spreader on asphalt machine; material mixer man (except on manholes); coffer dams; riprap pavers rock, block or brick; scaffolds over ten feet not self-supported from ground up; skip man on concrete paving; wire mesh setters on concrete paving; all work in connection with sewer, water, gas, gasoling, oil, drainage pipe, conduit pipe, tile and duct lines and all other pipe lines; power tool operator; all work in connection with hydraulic or general dredging operations; form setters, puddlers (paving only); straw blower nozzleman; asphalt plant platform man; chuck tender; crusher feeder; men handling creosote ties or creosote materials; men working with and handling epoxy material; topper of standing trees; feeder man on wood pulverizers, board and willow mat weavers and cabelee tiers on river work; deck hands; pile dike and revetment work; all laborers working on underground tunnels less than 25 ft. where compressed air is not used; abutement and pier hole men working six (6) ft. or more below ground; men working in coffer dams for bridge piers and footing in the river; barco tamper; jackson or any other similar tamp; cutting torch man; liners, curb, gutters, ditch lines; hot mastic kettlemen; hot tar applicator; hand blade operator; mortar men or brick or block manholes; rubbing concrete, air tool operator under 65 lbs.; caulker and lead man; chain or concrete saw under 15 h.p.; signal Gan; Guard rail and sign erectors.

GROUP 2 - Skilled laborers - Vibrator man; asphalt raker; head pipe layer on sewer work; batterboard man on pipe and ditch work; cliff scalers working from bosun's chairs; scaffolds or platforms on dams or power plants over 10 ft. high; air tool operator over 65 lbs.; stringline man on concrete paving; sandblast man; laser beam man; wagon drill; churn drill; air track drill and all other similar type drills, gunite nozzle man; pressure grout man; screed man on asphalt; concrete saw 15 h.p. and over; grade checker; strigline man on electronic grade control; manhole builder; dynamite man; powder man; welder; tunnel man; waterblaster - 1000 psi or over; asbestos and/or hazardous waste removal and/or disposal

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LABO0663-002 04/01/2022

CASS, CLAY, JACKSON, PLATTE AND RAY COUNTIES

	Rates	Fringes
LABORER		
GROUP 1	$ 33.05	16.81
GROUP 2	$ 34.26	16.81

LABORERS CLASSIFICATIONS

GROUP 1: General laborers, Carpenter tenders, salamander tenders, loading trucks under bins, hoppers and conveyors, track men and all other general laborers, air tool operator, cement handler (bulk or sack), chain or concrete saw, deck hands, dump man on earth fill, Georgie Buggies

man, material batch hopper man, scale man, material mixer man (except on manholes), coffer dams, abutments and pier hole men working below ground, riprap pavers rock, black or brick, signal man, scaffolds over ten feet not self-supported from ground up, skipman on concrete paving, wire mesh setters on concrete paving, all work in connection with sewer,water, gas, gasoling, oil, drainage pipe, conduit pipe, tile and duct lines and all other pipelines, power tool operator, all work in connection with hydraulic or general dredging operations, straw blower nozzleman,asphalt plant platform man, chuck tender, crusher feeder, men handling creosote ties on creosote materials, men working with and handling epoxy material or materials (where special protection is required), topper of standing trees, batter board man on pipe and ditch work, feeder man on wood pulverizers, board and willow mat weavers and cable tiers on river work, deck hands, pile dike and revetment work, all laborers working on underground tunnels less than 25 feet where compressed air is not used, abutment and pier hole men working six (6) feet or more below ground, men working in coffer dams for bridge piers and footings in the river, ditchliners, pressure groutmen, caulker and chain or concrete saw, cliffscalers working from scaffolds, bosuns' chairs or platforms on dams or power plants over (10) feet above ground, mortarmen on brick or block manholes, signal man.

GROUP 2: Skilled Laborer - spreader or screed man on asphalt machine, asphalt raker, grade checker, vibrator man, concrete saw over 5 hp., laser beam man, barco tamper, jackson or any other similar tamp, wagon driller, churn drills, air track drills and other similar drills, cutting torch man, form setters, liners and stringline men on concrete paving, curb, gutters and etc., hot mastic kettleman, hot tar applicator, hand blade operators, mortar men on brick or block manholes, sand blasting and gunnite nozzle men, rubbing concrete, air tool operator in tunnels, head pipe layer on sewer work, manhole builder (brick or block), dynamite and powder men.

LABO0840-011 05/01/2022

Crawford, Dent, Franklin, Gasconade, Howell, Maries, Oregon, Osage, Phelps, Pulaski, Shannon and Texas Counties

	Rates	Fringes
LABORER (Crawford, Dent, Gasconade, Howell, Maries, Oregon, Osage, Phelps, Pulaski, Shannon and Texas Counties)		
GROUP 1	$ 32.10	15.42
GROUP 2	$ 32.10	15.42
LABORER (Franklin County)		
GROUP 1	$ 34.44	15.42
GROUP 2	$ 35.04	15.42

LABORERS CLASSIFICATIONS

GROUP 1 - General laborer-flagman, carpenter tenders; salamander Tenders; Dump Man; Ticket Takers; loading trucks under bins, hoppers, and conveyors; track man; cement

handler; dump man on earth fill; georgie buggie man; material batch hopper man; spreader on asphalt machine; material mixer man (except on manholes); coffer dams; riprap pavers rock, block or brick; scaffolds over ten feet not self-supported from ground up; skip man on concrete paving; wire mesh setters on concrete paving; all work in connection with sewer, water, gas, gasoling, oil, drainage pipe, conduit pipe, tile and duct lines and all other pipe lines; power tool operator; all work in connection with hydraulic or general dredging operations; form setters, puddlers (paving only); straw blower nozzleman; asphalt plant platform man; chuck tender; crusher feeder; men handling creosote ties or creosote materials; men working with and handling epoxy material; topper of standing trees; feeder man on wood pulverizers, board and willow mat weavers and cabelee tiers on river work; deck hands; pile dike and revetment work; all laborers working on underground tunnels less than 25 ft. where compressed air is not used; abutement and pier hole men working six (6) ft. or more below ground; men working in coffer dams for bridge piers and footing in the river; barco tamper; jackson or any other similar tamp; cutting torch man; liners, curb, gutters, ditch lines; hot mastic kettlemen; hot tar applicator; hand blade operator; mortar men or brick or block manholes; rubbing concrete, air tool operator under 65 lbs.; caulker and lead man; chain or concrete saw under 15 h.p.; signal Gan; Guard rail and sign erectors.

GROUP 2 - Skilled laborers - Vibrator man; asphalt raker; head pipe layer on sewer work; batterboard man on pipe and ditch work; cliff scalers working from bosun's chairs; scaffolds or platforms on dams or power plants over 10 ft. high; air tool operator over 65 lbs.; stringline man on concrete paving; sandblast man; laser beam man; wagon drill; churn drill; air track drill and all other similar type drills, gunite nozzle man; pressure grout man; screed man on asphalt; concrete saw 15 h.p. and over; grade checker; strigline man on electronic grade control; manhole builder; dynamite man; powder man; welder; tunnel man; waterblaster - 1000 psi or over; asbestos and/or hazardous waste removal and/or disposal

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LABO0955-012 05/01/2022

Adair, Audrain, Boone, Chariton, Cooper, Howard, Linn, Macon, Monroe, Putnam, Randolph, Schuyler and Sullivan Counties

	Rates	Fringes
LABORER		
GROUP 1	$ 32.10	15.42
GROUP 2	$ 32.10	15.42

LABORERS CLASSIFICATIONS

GROUP 1 - General laborer-flagman, carpenter tenders; salamander Tenders; Dump Man; Ticket Takers; loading trucks under bins, hoppers, and conveyors; track man; cement handler; dump man on earth fill; georgie buggie man; material batch hopper man; spreader on asphalt machine; material mixer man (except on manholes); coffer dams; riprap pavers rock, block or brick; scaffolds over ten feet

not self-supported from ground up; skip man on concrete paving; wire mesh setters on concrete paving; all work in connection with sewer, water, gas, gasoling, oil, drainage pipe, conduit pipe, tile and duct lines and all other pipe lines; power tool operator; all work in connection with hydraulic or general dredging operations; form setters, puddlers (paving only); straw blower nozzleman; asphalt plant platform man; chuck tender; crusher feeder; men handling creosote ties or creosote materials; men working with and handling epoxy material; topper of standing trees; feeder man on wood pulverizers, board and willow mat weavers and cabelee tiers on river work; deck hands; pile dike and revetment work; all laborers working on underground tunnels less than 25 ft. where compressed air is not used; abutement and pier hole men working six (6) ft. or more below ground; men working in coffer dams for bridge piers and footing in the river; barco tamper; jackson or any other similar tamp; cutting torch man; liners, curb, gutters, ditch lines; hot mastic kettlemen; hot tar applicator; hand blade operator; mortar men or brick or block manholes; rubbing concrete, air tool operator under 65 lbs.; caulker and lead man; chain or concrete saw under 15 h.p.; signal Gan; Guard rail and sign erectors.

GROUP 2 - Skilled laborers - Vibrator man; asphalt raker; head pipe layer on sewer work; batterboard man on pipe and ditch work; cliff scalers working from bosun's chairs; scaffolds or platforms on dams or power plants over 10 ft. high; air tool operator over 65 lbs.; stringline man on concrete paving; sandblast man; laser beam man; wagon drill; churn drill; air track drill and all other similar type drills, gunite nozzle man; pressure grout man; screed man on asphalt; concrete saw 15 h.p. and over; grade checker; strigline man on electronic grade control; manhole builder; dynamite man; powder man; welder; tunnel man; waterblaster - 1000 psi or over; asbestos and/or hazardous waste removal and/or disposal

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LABO1104-005 05/01/2022

Bollinger, Butler, Cape Girardeau, Carter, Dunklin, Iron, Madison, Mississippi, New Madrid, Pemiscot, Perry, Reynolds, Ripley, Scott, St Francois, Ste Genevieve, Stoddard and Wayne Counties

	Rates	Fringes
LABORER		
GROUP 1	$ 32.10	15.42
GROUP 2	$ 32.10	15.42

LABORERS CLASSIFICATIONS

GROUP 1 - General laborer-flagman, carpenter tenders; salamander Tenders; Dump Man; Ticket Takers; loading trucks under bins, hoppers, and conveyors; track man; cement handler; dump man on earth fill; georgie buggie man; material batch hopper man; spreader on asphalt machine; material mixer man (except on manholes); coffer dams; riprap pavers rock, block or brick; scaffolds over ten feet not self-supported from ground up; skip man on concrete paving; wire mesh setters on concrete paving; all work in

connection with sewer, water, gas, gasoling, oil, drainage pipe, conduit pipe, tile and duct lines and all other pipe lines; power tool operator; all work in connection with hydraulic or general dredging operations; form setters, puddlers (paving only); straw blower nozzleman; asphalt plant platform man; chuck tender; crusher feeder; men handling creosote ties or creosote materials; men working with and handling epoxy material; topper of standing trees; feeder man on wood pulverizers, board and willow mat weavers and cabelee tiers on river work; deck hands; pile dike and revetment work; all laborers working on underground tunnels less than 25 ft. where compressed air is not used; abutement and pier hole men working six (6) ft. or more below ground; men working in coffer dams for bridge piers and footing in the river; barco tamper; jackson or any other similar tamp; cutting torch man; liners, curb, gutters, ditch lines; hot mastic kettlemen; hot tar applicator; hand blade operator; mortar men or brick or block manholes; rubbing concrete, air tool operator under 65 lbs.; caulker and lead man; chain or concrete saw under 15 h.p.; signal Gan; Guard rail and sign erectors.

GROUP 2 - Skilled laborers - Vibrator man; asphalt raker; head pipe layer on sewer work; batterboard man on pipe and ditch work; cliff scalers working from bosun's chairs; scaffolds or platforms on dams or power plants over 10 ft. high; air tool operator over 65 lbs.; stringline man on concrete paving; sandblast man; laser beam man; wagon drill; churn drill; air track drill and all other similar type drills, gunite nozzle man; pressure grout man; screed man on asphalt; concrete saw 15 h.p. and over; grade checker; strigline man on electronic grade control; manhole builder; dynamite man; powder man; welder; tunnel man; waterblaster - 1000 psi or over; asbestos and/or hazardous waste removal and/or disposal

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PAIN0002-002 09/01/2007

CLARK, FRANKLIN, JEFFERSON, LEWIS, LINCOLN, MARION, PIKE, RALLS, ST. CHARLES, ST. LOUIS (CITY & COUNTY), AND WARREN COUNTIES

	Rates	Fringes
Painters:		
Brush and Roller; Taper	$ 28.61	10.24
High work over 60 feet	$ 29.11	10.24
Lead Abatement	$ 29.36	10.24
Pressure Roller; High work under 60 ft	$ 28.86	10.24
Spray & Abrasive Blasting; Water Blasting (Over 5000 PSI)	$ 30.61	10.24
Taper (Ames Tools & Bazooka)	$ 30.21	10.24

PAIN0002-006 04/01/2020

ADAIR, AUDRAIN, BOONE, CALLAWAY, CHARITON, COLE, GASCONADE, HOWARD, KNOX, LINN, MACON, MONROE, MONTGOMERY, OSAGE, PUTNAM, RANDOLPH, SCHUYLER, SCOTLAND, SHELBY AND SULLIVAN COUNTIES and the City of Booneville.

	Rates	Fringes
Painters:		
Bridges, Dams, Locks or Powerhouses	$ 26.64	13.98
Brush and Roll; Taping, Paperhanging	$ 24.64	13.98
Epoxy or Any Two Part Coating; Sandblasting; Stage or other Aerial Work - Platforms over 50 feet high; Lead Abatement	$ 25.64	13.98
Spray; Structural Steel (over 50 feet)	$ 24.64	13.98
Tapers using Ames or Comparable Tools	$ 25.39	13.98

PAIN0003-004 04/01/2019

CASS, CLAY, CLINTON, JACKSON, JOHNSON, LAFAYETTE, PLATTE & RAY COUNTIES

	Rates	Fringes
Painters:		
Bridgeman; Lead Abatement; Sandblast; Storage Bin & Tanks	$ 33.41	17.76
Brush & Roller	$ 30.54	17.76
Drywall	$ 31.74	17.76
Paper Hanger	$ 31.04	17.76
Stageman; Beltman; Steelman; Elevator Shaft; Bazooka, Boxes and Power Sander; Sprayman; Dipping	$ 32.41	17.76
Steeplejack	$ 36.98	17.76

PAIN0003-011 04/01/2019

BATES, BENTON, CALDWELL, CARROLL, COOPER, DAVIESS, GRUNDY, HARRISON, HENRY, LIVINGSTON, MERCER, MONITEAU, MORGAN, PETTIS & SALINE COUNTIES

	Rates	Fringes
Painters:		
Bridgeman; Lead Abatement; Sandblast; Storage Bin & Tanks	$ 26.73	17.76
Brush & Roller	$ 24.43	17.76
Drywall	$ 25.39	17.76
Paper Hanger	$ 24.83	17.76
Stageman; Beltman; Steelman; Elevator Shaft; Bazooka, Boxes and Power Sander; Sprayman; Dipping	$ 26.35	17.76
Steeplejack	$ 29.58	17.76

PAIN0203-001 04/01/2012

BARRY, BARTON, CEDAR, CHRISTIAN, DADE, DALLAS, DOUGLAS, GREENE,

HICKORY, HOWELL, JASPER, LAWRENCE, MCDONALD, NEWTON, OZARK, POLK, ST. CLAIR, STONE, TANEY, VERNON, WEBSTER, and WRIGHT COUNTIES

	Rates	Fringes
Painters:		
Finisher	$ 20.18	11.33
Painter	$ 19.75	11.76
Sandblaster, High Man, Spray Man, Vinyl Hanger, Tool Operator	$ 21.18	11.33

PAIN1185-008 04/01/2022

CAMDEN, CRAWFORD, DENT, LACLEDE, MARIES, MILLER, PHELPS, PULASKI AND TEXAS COUNTIES

	Rates	Fringes
Painters:		
Brush and Roller	$ 31.28	14.58
Floor Work	$ 32.28	14.58
Lead Abatement	$ 32.28	14.58
Spray	$ 32.28	14.58
Structural Steel, Sandblasting and All Tank Work	$ 33.28	14.58
Taping, Paperhanging	$ 32.28	14.58

PAIN1292-002 09/01/2022

BOLLINGER, BUTLER, CAPE GIRARDEAU, CARTER, DUNKLIN, MISSISSIPPI, NEW MADRID, OREGON, PEMISCOT, PERRY, REYNOLDS, RIPLEY, SCOTT, SHANNON, STODDARD and WAYNE COUNTIES

	Rates	Fringes
Painters:		
Bridges, Stacks & Tanks	$ 33.93	15.36
Brush & Roller	$ 29.58	15.36
Spray & Abrasive Blasting; Waterblasting (over 5000 PSI)	$ 31.58	15.36

Height Rates (All Areas):
Over 60 ft. $0.50 per hour.
Under 60 ft. $0.25 per hour.

PAIN1292-003 09/01/2022

IRON, MADISON, ST. FRANCOIS, STE. GENEVIEVE and WASHINGTON COUNTIES

	Rates	Fringes
Painters:		
Bridges, Stacks & Tanks	$ 33.93	15.36
Brush & Roller	$ 29.58	15.36
Spray & Abrasive Blasting;		

Waterblasting (Over 5000 PSI)	$ 31.58	15.36

Height Rates (All Areas):
0ver 60 ft. $0.50 per hour
Under 60 ft. $0.25 per hour.

PAIN2012-001 04/20/2022

ANDREW, ATCHISON, BUCHANAN, DE KALB, GENTRY, HOLT, NODAWAY & WORTH COUNTIES

	Rates	Fringes
Painters:		
Brush & Roller	$ 33.35	18.73
Sandblaster	$ 37.27	18.73
Steeplejack	$ 40.84	18.73

PLAS0518-006 03/01/2022

BARRY, BARTON, CEDAR, CHRISTIAN, DADE, DALLAS, DOUGLAS, GREENE, HICKORY, JASPER, LACLEDE, LAWRENCE, MCDONALD, NEWTON, OZARK, POLK, ST. CLAIR, STONE, TANEY, VERNON, WEBSTER, AND WRIGHT COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 25.77	12.43

PLAS0518-007 04/01/2022

CASS (Richards-Gebaur AFB only), CLAY, JACKSON, PLATTE AND RAY COUNTIES

	Rates	Fringes
Cement Masons:	$ 35.12	18.30

PLAS0518-011 04/01/2022

ANDREW, ATCHISON, BATES, BUCHANNAN, CLINTON, DEKALB, GENTRY, HENRY, HOLT, JOHNSON, LAFAYETTE, NODAWAY & WORTH COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 34.93	20.50

PLAS0527-001 04/01/2021

	Rates	Fringes
CEMENT MASON		
FRANKLIN, LINCOLN AND WARREN COUNTIES	$ 34.79	19.58
JEFFERSON, ST. CHARLES COUNTIES AND ST.LOUIS (City and County)	$ 35.96	19.56

PLAS0527-004 06/01/2021

CRAWFORD, DENT, IRON, MADISON, MARION, PHELPS, PIKE, PULASKI, RALLS, REYNOLDS, ST. FRANCOIS, STE. GENEVIEVE, SHANNON, TEXAS, WASHINGTON COUNTIES

	Rates	Fringes
CEMENT MASON	$ 30.30	19.48

PLAS0908-001 05/01/2021

BOLLINGER, BUTLER, CAPE GIRARDEAU, CARTER, DUNKLIN, HOWELL, MISSISSIPPI, NEW MADRID, OREGON, PEMISCOT, PERRY, RIPLEY, SCOTT, STODDARD, AND WAYNE COUNTIES

	Rates	Fringes
CEMENT MASON	$ 30.30	17.53

PLAS0908-005 05/01/2021

BENTON, CALDWELL, CALLAWAY, CAMDEN, CARROLL, COLE, DAVIESS, GASCONADE, GRUNDY, HARRISON, LIVINGSTON, MACON, MARIES, MERCER, MILLER, MONTGOMERY, MORGAN, OSAGE, PETTIS & SALINE COUNTIES

	Rates	Fringes
CEMENT MASON	$ 30.30	17.53

PLUM0008-003 06/01/2022

CASS, CLAY, JACKSON, JOHNSON, AND PLATTE COUNTIES

	Rates	Fringes
Plumbers	$ 51.28	23.29

PLUM0008-017 06/01/2022

BATES, BENTON, CARROLL, HENRY, LAFAYETTE, MORGAN, PETTIS, RAY, ST. CLAIR, SALINE AND VERNON COUNTIES

	Rates	Fringes
Plumbers	$ 51.28	23.29

PLUM0045-003 08/01/2022

ANDREW, ATCHISON, BUCHANAN, CALDWELL, CLINTON, DAVIESS, DEKALB, GENTRY, HARRISON, HOLT, NODAWAY AND WORTH COUNTIES

	Rates	Fringes
Plumbers and Pipefitters	$ 41.35	25.45

PLUM0178-003 11/01/2022

BARRY, CEDAR, CHRISTIAN, DADE, DALLAS, DOUGLAS, GREENE, HICKORY, LACLEDE, LAWRENCE, POLK, STONE, TANEY, WEBSTER AND WRIGHT COUNTIES

	Rates	Fringes
Plumbers and Pipefitters	$ 35.75	15.32

PLUM0178-006 11/01/2022

BARTON, JASPER, MCDONALD AND NEWTON COUNTIES

	Rates	Fringes
Plumbers and Pipefitters		
Projects $750,000 & under	$ 32.78	15.32
Projects over $750,000	$ 35.75	15.32

PLUM0533-004 06/01/2022

BATES, BENTON, CARROLL, CASS, CLAY, HENRY, HICKORY, JACKSON, JOHNSON, LAFAYETTE, MORGAN, PETTIS, PLATTE, RAY, SALINE, ST. CLAIR AND VERNON COUNTIES

	Rates	Fringes
Pipefitters	$ 51.43	23.35

PLUM0562-004 07/01/2022

ADAIR, AUDRAIN, BOLLINGER, BOONE, BUTLER, CALLAWAY,CAMDEN, CAPE GIRARDEAU,CARTER, CHARITON, CLARK, COLE, COOPER, CRAWFORD, DENT, DUNKLIN, FRANKLIN, GASCONADE, GRUNDY, HOWARD, HOWELL, IRON, JEFFERSON, KNOX, LEWIS, LINCOLN, LINN, LIVINGSTON, MACON, MADISON, MARIES, MARION, MERCER, MILLER, MISSISSIPPI, MONITEAU, MONROE, MONTGOMERY, NEW MADRID, OREGON, OSAGE, PEMISCOTT, PERRY, PHELPS, PIKE, PULASKI, PUTNAM, RALLS, RANDOLPH, REYNOLDS, RIPLEY, ST. CHARLES, ST.FRANCOIS, STE. GENEVIEVE, ST. LOUIS, SCHUYLER, SCOTLAND, SCOTT, SHANNON, SHELBY, STODDARD, SULLIVAN, TEXAS, WARREN, WASHINGTON,AND WAYNE COUNTIES.

	Rates	Fringes
Plumbers and Pipefitters		
Mechanical Contracts including all piping and temperature control work $7.0 million & under	$ 44.66	21.49
Mechanical Contracts including all piping and temperature control work over $7.0 million	$ 44.66	21.49

PLUM0562-016 07/01/2022

CAMDEN, COLE, CRAWFORD, FRANKLIN, JEFFERSON, MARIES, MILLER, MONITEAU, OSAGE, PHELPS, PULASKI, ST. CHARLES, ST. LOUIS (City and County), WARREN and WASHINGTON COUNTIES

	Rates	Fringes
Plumbers		
Mechanical Contracts including all piping and		

temperature control work
$7.0 million & under.....$ 44.66 21.49
Mechanical Contracts
including all piping and
temperature control work
over $7.0 million.....$ 44.66 21.49

TEAM0013-001 05/01/2022

	Rates	Fringes
Truck drivers (ADAIR, BUTLER, CLARK, DUNKIN, HOWELL, KNOX, LEWIS, OREGON, PUTNAM, RIPLEY, SCHUYLER AND SCOTLAND COUNTIES)		
GROUP 1	$ 32.44	14.75
GROUP 2	$ 32.60	14.75
GROUP 3	$ 32.59	14.75
GROUP 4	$ 32.71	14.75
Truck drivers (AUDRAIN, BOLLINGER, BOONE, CALLAWAY, CAPE GIRARDEAU, CARTER, COLE, CRAWFORD, DENT, GASCONADE, IRON, MACON, MADISON, MARIES, MARION, MILLER, MISSISSIPPI, MONROE, MONTGOMERY, NEW MADRID, OSAGE, PEMISCOT, PERRY, PHELPS, PIKE, PULASKI, RALLS, REYNOLDS, ST. FRANCOIS, STE. GENEVIEVE, SCOTT, SHANNON, SHELBY, STODDARD, TEXAS, WASHINGTON AND WAYNE COUNTIES)		
GROUP 1	$ 33.17	14.75
GROUP 2	$ 33.33	14.75
GROUP 3	$ 33.32	14.75
GROUP 4	$ 33.44	14.75
Truck drivers (FRANKLIN, JEFFERSON and ST. CHARLES COUNTIES)		
GROUP 1	$ 35.53	14.75
GROUP 2	$ 35.64	14.75
GROUP 3	$ 35.68	14.75
GROUP 4	$ 35.75	14.75
Truck drivers (LINCOLN and WARREN COUNTIES)		
GROUP 1	$ 35.18	14.75
GROUP 2	$ 34.29	14.75
GROUP 3	$ 35.33	14.75
GROUP 4	$ 34.40	14.75

TRUCK DRIVERS CLASSIFICATIONS:

GROUP 1: Flat Bed Trucks, Single Axle; Station Wagons; Pickup Trucks; Material Trucks, Single Axle; Tank Wagon, Single Axle

GROUP 2: Agitator and Transit Mix Trucks

GROUP 3: Flat Bed Trucks, Tandem Axle; Articulated Dump Trucks; Material Trucks, Tandem Axle; Tank Wagon, Tandem Axle

GROUP 4: Semi and/or Pole Trailers; Winch, Fork & Steel

Trucks; Distributor Drivers and Operators; Tank Wagon, Semi-Trailer; Insley Wagons, Dumpsters, Half-Tracks, Speedace, Euclids and other similar equipment; A-Frame and Derrick Trucks; Float or Low Boy

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TEAM0056-001 05/01/2020

	Rates	Fringes
Truck drivers (ANDREW, BARTON, BATES, BENTON, CALDWELL, CAMDEN, CARROLL, CEDAR, CHARITON, CHRISTIAN, CLINTON, COOPER, DADE, DALLAS, DAVIESS, DEKALB, DOUGLAS, GREENE, HENRY, HICHKORY, HOWARD, JASPER, LACLEDE, LAWRENCE, LINN, LIVINGSTON, MONITEAU, MORGAN, NEWTON, PETTIS, POLK, RANDOLPH, ST. CLAIR, SALINE, VERNON, WEBSTER AND WRIGHT COUNTIES)		
GROUP 1	$ 31.37	14.25
GROUP 2	$ 31.53	14.25
GROUP 3	$ 31.52	14.25
GROUP 4	$ 31.64	14.25
Truck drivers: (ATCHISON, BARRY, GENTRY, GRUNDY, HARRISON, HOLT, MCDONALD, MERCER, NODAWAY, OZARK, STONE, SULLIVAN, TANEY AND WORTH COUNTIES)		
GROUP 1	$ 30.64	14.25
GROUP 2	$ 30.80	14.25
GROUP 3	$ 30.79	14.25
GROUP 4	$ 30.91	14.25
Truck drivers; (BUCHANAN, JOHNSON AND LAFAYETTE COUNTIES)		
GROUP 1	$ 32.58	14.25
GROUP 2	$ 32.69	14.25
GROUP 3	$ 32.73	14.25
GROUP 4	$ 32.80	14.25

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Flat bed trucks single axle; station wagons; pickup trucks; material trucks single axle; tank wagons single axle.

GROUP 2: Agitator and transit mix-trucks.

GROUP 3: Flat bed trucks tandem axle; articulated dump trucks; material trucks tandem axle; tank wagons tandem axle.

GROUP 4: Semi and/or pole trailers; winch, fork & steel trucks; distributor drivers & operators; tank wagons semi-trailer; insley wagons, dumpsters, half-tracks, speedace, euclids & other similar equipment; A-frames and derrick trucks; float or low boy.

TEAM0245-001 03/26/2012

BARRY, BARTON, CAMDEN, CEDAR, CHRISTIAN, DALLAS, DENT, DOUGLAS, GREENE, HICKORY, HOWELL, JASPER, LACLEDE, LAWRENCE, MCDONALD, MILLER, NEWTON, OZARK, PHELPS, POLK, PULASKI, SHANNON, STONE, TANEY, TEXAS, VERNON, WEBSTER AND WRIGHT COUNTIES

	Rates	Fringes
Truck drivers:		
Traffic Control Service Driver	$ 20.45	0.00

PAID HOLIDAYS: New Year's Day, Decoration Day, July 4th, Labor Day, Thanksgiving Day, Christmas Day, employee's birthday and 2 personal days.

TEAM0541-001 04/01/2022

CASS, CLAY, JACKSON, PLATTE AND RAY COUNTIES

	Rates	Fringes
Truck drivers:		
GROUP 1	$ 34.71	16.75
GROUP 2	$ 34.14	16.75
GROUP 3	$ 33.62	16.75

TRUCK DRIVERS CLASSIFICATIONS

GROUP 1: Mechanics and Welders, Field; A-Frame Low Boy-Boom ruck Driver.

GROUP 2: Articulated Dump Truck; Insley Wagons: Dump Trucks, Excavating, 5 cu yds and over; Dumpsters; Half-Tracks: Speedace: Euclids & similar excavating equipment Material trucks, Tandem Two teams; Semi-Trailers; Winch trucks-Fork trucks; Distributor Drivers and Operators; Agitator and Transit Mix; Tank Wagon Drivers, Tandem or Semi; One Team; Station Wagons; Pickup Trucks; Material Trucks, Single Axle; Tank Wagon Drivers, Single Axle

GROUP 3: Oilers and Greasers - Field

TEAM0682-002 05/01/2017

ST LOUIS CITY AND COUNTY

	Rates	Fringes
Truck drivers:		
GROUP 1	$ 33.30	13.79+a+b+c+d
GROUP 2	$ 33.50	13.79+a+b+c+d
GROUP 3	$ 33.60	13.79+a+b+c+d

a. PENSION: 5/1/2012 - $182.20 per week.

b. HAZMAT PREMIUM: If Hazmat certification on a job site is required by a state or federal agency or requested by project owner or by the employer, employees on that job site shall receive $1.50 premium pay.

TRUCK DRIVERS CLASSIFICATIONS

GROUP 1 - Pick-up trucks; forklift, single axle; flatbed trucks; job site ambulance, and trucks or trailers of a water level capacity of 11.99 cu. yds. or less

GROUP 2 - Trucks or trailers of a water level capacity of 12.0 cu yds. up to 22.0 cu yds. including euclids, speedace and similar equipment of same capacity and compressors

GROUP 3 - Trucks or trailers of a water level capacity of 22.0 cu. yds & over including euclids, speedace & all floats, flatbed trailers, boom trucks, winch trucks, including small trailers, farm wagons tilt-top trailers, field offices, tool trailers, concrete pumps, concrete conveyors & gasoline tank trailers and truck mounted mobile concrete mixers

FOOTNOTE FOR TRUCK DRIVERS:

c. PAID HOLIDAYS: Christmas Day, Independence Day, Labor Day, Memorial Day, Veterans Day, New Years Day, Thanksgiving Day

d. PAID VACATION: 3 days paid vacation for 600 hours of service in any one contract year; 4 days paid vacation for 800 hours of service in any one contract year; 5 days paid vacation for 1,000 hours of service in any one contract year. When such an employee has completed 3 years of continuous employment with the same employer and then works the above required number of hours, he shall receive double the number of days of vacation specified above. When such an employee has completed 10 years of continuous employment with the same employer and then works the above required number of hours, he shall receive triple the number of days of vacation specified above. When such an employee has completed 15 years of continuous employment with the same employer and then works the above required number of hours, he shall receive 4 times the number of days of vacation specified above.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at

https://www.dol.gov/agencies/whd/government-contracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the

classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor

200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISIO"

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

ADDENDUM NUMBER 1

Project Number 62230566

Project Title Taxiway E and Taxiway J Rehabilitation

ISSUE DATE: **February 28, 2023**

Bidders are hereby notified that the Bidding and Contract Documents for the above project, for which Bids are to be received on **March 21, 2023**, are amended as follows:

Bidding Requirements

1. Delete and replace the following section(s):
   a. Delete Specification Section 00410 02 - Buy American Certification Form for Non-Building Projects or Equipment and replace with Specification Section 00410 02 – Buy American Certification Form for Construction Projects dated 01/20/23 attached.
   b. Delete Specification Section 00800 02 - AIP Construction and Equipment Federal Supplementary Provisions and replace with Specification Section 00800 02 - AIP Construction and Equipment Federal Supplementary Provisions dated 01/20/23 attached.

Specifications

1. Add the following section(s):
   a. Appendix A – Geotechnical Report
   b. Appendix B – Construction Safety Phasing Plan (CSPP)

NOTE: Bidders must acknowledge receipt of this Addendum by listing the number and date, where provided, on the Bid Form - Document 00410.

Certification of Compliance with FAA Buy American Preference
Construction Projects

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with its proposal. The bidder or offeror must indicate how it intends to comply with 49 USC § 50101, BABA and other related Made in America Laws, U.S. statutes, guidance, and FAA policies, by selecting one of the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (i.e., not both) by inserting a checkmark (✓) or the letter "X".

☐ Bidder or offeror hereby certifies that it will comply with 49 USC § 50101, BABA and other related U.S. statutes, guidance, and policies of the FAA by:

a) Only installing iron, steel and manufactured products produced in the United States;

b) Only installing construction materials defined as: an article, material, or supply – other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber or drywall that have been manufactured in the United States.

c) Installing manufactured products for which the Federal Aviation Administration (FAA) has issued a waiver as indicated by inclusion on the current FAA Nationwide Buy American Waivers Issued listing; or

d) Installing products listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation Subpart 25.108.

By selecting this certification statement, the bidder or offeror agrees:

a) To provide to the Airport Sponsor or the FAA evidence that documents the source and origin of the iron, steel, and/or manufactured product.
b) To faithfully comply with providing U.S. domestic products.
c) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.
d) Certify that all construction materials used in the project are manufactured in the U.S.

☐ The bidder or offeror hereby certifies it cannot comply with the 100 percent Buy American Preferences of 49 USC § 50101(a) but may qualify for a Type 3 or Type 4 waiver under 49 USC § 50101(b). By selecting this certification statement, the apparent bidder or offeror with the apparent low bid agrees:

a) To the submit to the Airport Sponsor or FAA within 15 calendar days of being selected as the responsive bidder, a formal waiver request and required documentation that supports the type of waiver being requested.
b) That failure to submit the required documentation within the specified timeframe is cause for a non-responsive determination that may result in rejection of the proposal.
c) To faithfully comply with providing U.S. domestic products at or above the approved U.S. domestic content percentage as approved by the FAA.
d) To furnish U.S. domestic product for any waiver request that the FAA rejects.

e) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

Required Documentation

Type 2 Waiver (Nonavailability) - The iron, steel, manufactured goods or construction materials or manufactured goods are not available in sufficient quantity or quality in the United States. The required documentation for the Nonavailability waiver is

a) Completed Content Percentage Worksheet and Final Assembly Questionnaire
b) Record of thorough market research, consideration where appropriate of qualifying alternate items, products, or materials including;
c) A description of the market research activities and methods used to identify domestically manufactured items capable of satisfying the requirement, including the timing of the research and conclusions reached on the availability of sources.

Type 3 Waiver – The cost of components and subcomponents produced in the United States is more than 60 percent of the cost of all components and subcomponents of the "facility/project." The required documentation for a Type 3 waiver is:

a) Completed Content Percentage Worksheet and Final Assembly Questionnaire including;
b) Listing of all manufactured products that are not comprised of 100 percent U.S. domestic content (excludes products listed on the FAA Nationwide Buy American Waivers Issued listing and products excluded by Federal Acquisition Regulation Subpart 25.108; products of unknown origin must be considered as non-domestic products in their entirety).
c) Cost of non-domestic components and subcomponents, excluding labor costs associated with final assembly and installation at project location.
d) Percentage of non-domestic component and subcomponent cost as compared to total "facility" component and subcomponent costs, excluding labor costs associated with final assembly and installation at project location.

Type 4 Waiver (Unreasonable Costs) - Applying this provision for iron, steel, manufactured goods or construction materials would increase the cost of the overall project by more than 25 percent. The required documentation for this waiver is:

a) A completed Content Percentage Worksheet and Final Assembly Questionnaire from
b) At minimum two comparable equal bids and/or offers;
c) Receipt or record that demonstrates that supplier scouting called for in Executive Order 14005, indicates that no domestic source exists for the project and/or component;
d) Completed waiver applications for each comparable bid and/or offer.

False Statements: Per 49 USC § 47126, this certification concerns a matter within the jurisdiction of the Federal Aviation Administration and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code.

Date	Signature
Company Name	Title

SUPPLEMENTARY PROVISIONS

PART A - FEDERAL CONTRACT PROVISIONS FOR CONSTRUCTION AND EQUIPMENT CONTRACTS

APPLICATION OF REFERENCES

ALL REFERENCES MADE HEREIN TO "CONTRACTOR", "BIDDER", AND "OFFEROR" SHALL PERTAIN TO THE PRIME CONTRACTOR. ALL REFERENCES MADE HEREIN TO "SUBCONTRACTOR" SHALL PERTAIN TO ANY AND ALL SUBCONTRACTORS UNDER CONTRACT WITH THE PRIME CONTRACTOR OR A SUBCONTRACTOR.

ALL REFERENCES MADE HEREIN TO "CONSULTANT" SHALL PERTAIN TO ARCHITECT/ENGINEER (A/E) UNDER CONTRACT WITH THE SPONSOR. ALL REFERENCES MADE HEREIN TO "SUBCONSULTANT" SHALL PERTAIN TO ANY AND ALL SUBCONSULTANTS UNDER CONTRACT WITH THE A/E.

ALL REFERENCES MADE HEREIN TO "SPONSOR" AND "OWNER" SHALL PERTAIN TO THE STATE, CITY, AIRPORT AUTHORITY OR OTHER PUBLIC ENTITY EXECUTING CONTRACTS WITH THE PRIME CONTRACTOR AND/OR THE A/E.

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PROVISIONS APPLICABLE TO ALL CONTRACTS

ACCESS TO RECORDS AND REPORTS

Reference: 2 CFR § 200.334
2 CFR § 200.337
FAA Order 5100.38

The Contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the Owner, the Federal Aviation Administration and the Comptroller General of the United States or any of their duly authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts and transcriptions. The Contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters are closed.

BUY AMERICAN PREFERENCE

Reference: 49 USC § 50101
Executive Order 14005, *Ensuring the Future is Made in All of America by All of America's Workers*
Bipartisan Infrastructure Law (Pub. L. No. 117-58), Build America, Buy America (BABA)

The Contractor certifies that its bid/offer is in compliance with 49 USC § 50101, BABA and other related Made in America Laws,[1] U.S. statutes, guidance, and FAA policies, which provide that Federal funds may not be obligated unless all iron, steel and manufactured goods used in AIP funded projects are produced in the United States, unless the Federal Aviation Administration has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

The bidder or offeror must complete and submit the certification of compliance with FAA's Buy American Preference, BABA and Made in America laws included herein with their bid or offer. The Airport Sponsor/Owner will reject as nonresponsive any bid or offer that does not include a completed certification of compliance with FAA's Buy American Preference and BABA.

The bidder or offeror certifies that all constructions materials, defined to mean an article, material, or supply other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of: non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber; or drywall used in the project are manufactured in the U.S.

[1] Per Executive Order 14005 "Made in America Laws" means all statutes, regulations, rules, and Executive Orders relating to federal financial assistance awards or federal procurement, including those that refer to "Buy America" or "Buy American," that require, or provide a preference for, the purchase or acquisition of goods, products, or materials produced in the United States, including iron, steel, and manufactured products offered in the United States.

CIVIL RIGHTS – GENERAL

Reference: 49 USC § 47123

In all its activities within the scope of its airport program, the Contractor agrees to comply with pertinent statutes, Executive Orders, and such rules as identified in Title VI List of Pertinent Nondiscrimination Acts and Authorities to ensure that no person shall, on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance.

This provision is in addition to that required by Title VI of the Civil Rights Act of 1964.

The above provision binds the Contractor and subcontractors from the bid solicitation period through the completion of the contract.

CIVIL RIGHTS – TITLE VI ASSURANCES

Reference: 49 USC § 47123
FAA Order 1400.11

Title VI Solicitation Notice

The Sponsor, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 USC §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders or offerors that it will affirmatively ensure that for any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and no businesses will be discriminated against on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability in consideration for an award.

Title VI List of Pertinent Nondiscrimination Acts and Authorities

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "Contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 USC § 2000d *et seq*., 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin);
- 49 CFR part 21 (Non-discrimination in Federally-Assisted programs of the Department of Transportation—Effectuation of Title VI of the Civil Rights Act of 1964);
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 USC § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Section 504 of the Rehabilitation Act of 1973 (29 USC § 794 *et seq*.), as amended (prohibits discrimination on the basis of disability); and 49 CFR part 27 (Nondiscrimination on the Basis of Disability in Programs or Activities Receiving Federal Financial Assistance);
- The Age Discrimination Act of 1975, as amended (42 USC § 6101 *et seq*.) (prohibits discrimination on the basis of age);

- Airport and Airway Improvement Act of 1982 (49 USC § 47123), as amended (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987 (PL 100-259) (broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, the Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act of 1990 (42 USC § 12101, et seq) (prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities) as implemented by U.S. Department of Transportation regulations at 49 CFR parts 37 and 38;
- The Federal Aviation Administration's Nondiscrimination statute (49 USC § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (ensures nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations);
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs [70 Fed. Reg. 74087 (2005)];
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 USC § 1681, et seq).

Nondiscrimination Requirements / Title VI Clauses for Compliance

Compliance with Nondiscrimination Requirements:

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "Contractor") agrees as follows:

1. **Compliance with Regulations:** The Contractor (hereinafter includes consultants) will comply with the Title VI List of Pertinent Nondiscrimination Acts and Authorities, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Nondiscrimination:** The Contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including

employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.

3. **Solicitations for Subcontracts, including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the Contractor of the contractor's obligations under this contract and the Nondiscrimination Acts and Authorities on the grounds of race, color, or national origin.
4. **Information and Reports:** The Contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Nondiscrimination Acts and Authorities and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the Contractor will so certify to the Sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a Contractor's noncompliance with the non-discrimination provisions of this contract, the Sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:
    a. Withholding payments to the Contractor under the contract until the Contractor complies; and/or
    b. Cancelling, terminating, or suspending a contract, in whole or in part.
6. **Incorporation of Provisions:** The Contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations, and directives issued pursuant thereto. The Contractor will take action with respect to any subcontract or procurement as the Sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the Contractor may request the Sponsor to enter into any litigation to protect the interests of the Sponsor. In addition, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

Reference: 2 CFR § 200, Appendix II(K)
2 CFR § 200.216

Contractor and Subcontractor agree to comply with mandatory standards and policies relating to use and procurement of certain telecommunications and video surveillance services or equipment in compliance with the National Defense Authorization Act [Public Law 115-232 § 889(f)(1)].

FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

Reference: 29 USC § 201, et seq
2 CFR § 200.430

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 CFR part 201, et seq, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part-time workers.

The Contractor has full responsibility to monitor compliance to the referenced statute or regulation. The Contractor must address any claims or disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

Reference: 20 CFR Part 1910

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. The employer must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The employer retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (29 CFR Part 1910). The employer must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

RIGHT TO INVENTIONS

Reference: 2 CFR Part 200, Appendix II(F)
37 CFR Part 401

Contracts or agreements that include the performance of experimental, developmental, or research work must provide for the rights of the Federal Government and the Owner in any resulting invention as established by 37 CFR part 401, Rights to Inventions Made by Non-profit Organizations and Small Business Firms under Government Grants, Contracts, and Cooperative Agreements. This contract incorporates by reference the patent and inventions rights as specified within 37 CFR § 401.14. Contractor must include this requirement in all sub-tier contracts involving experimental, developmental, or research work.

SEISMIC SAFETY

Reference: 49 CFR Part 41

The Contractor agrees to ensure that all work performed under this contract, including work performed by subcontractors, conforms to a building code standard that provides a level of seismic safety substantially equivalent to standards established by the National Earthquake Hazards Reduction Program (NEHRP). Local building codes that model their code after the current version of the International Building Code (IBC) meet the NEHRP equivalency level for seismic safety.

TAX DELINQUENCY AND FELONY CONVICTIONS

Reference: Section 8113 of the Consolidated Appropriations Act, 2022 (Public Law 117-103) and similar provisions in subsequent appropriations acts
DOT Order 4200.6 – Appropriations Act Requirements for Procurement and Non-Procurement Regarding Tax Delinquency and Felony Convictions

The Contractor certifies:

1) It is not a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. A tax delinquency is any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

2) It is not a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months. A felony conviction is a conviction within the preceding twenty four (24) months of a felony criminal violation under any Federal law and includes conviction of an offense defined in a section of the U.S. code that specifically classifies the offense as a felony and conviction of an offense that is classified as a felony under 18 USC § 3559.

The Contractor agrees to incorporate the above certification in all lower tier subcontracts.

TRADE RESTRICTION CERTIFICATION

Reference: 49 USC § 50104
49 CFR Part 30

By submission of an offer, the Offeror certifies that with respect to this solicitation and any resultant contract, the Offeror:

1) is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms as published by the Office of the United States Trade Representative (USTR);

2) has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country included on the list of countries that discriminate against U.S. firms as published by the USTR; and

3) has not entered into any subcontract for any product to be used on the Federal project that is produced in a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18 USC § 1001.

The Offeror/Contractor must provide immediate written notice to the Owner if the Offeror/Contractor learns that its certification or that of a subcontractor was erroneous when

submitted or has become erroneous by reason of changed circumstances. The Contractor must require subcontractors provide immediate written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR § 30.17, no contract shall be awarded to an Offeror or subcontractor:

1) who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR; or
2) whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such USTR list; or
3) who incorporates in the public works project any product of a foreign country on such USTR list.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

The Offeror agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in all lower tier subcontracts. The Contractor may rely on the certification of a prospective subcontractor that it is not a firm from a foreign country included on the list of countries that discriminate against U.S. firms as published by USTR, unless the Offeror has knowledge that the certification is erroneous.

This certification is a material representation of fact upon which reliance was placed when making an award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration (FAA) may direct through the Owner cancellation of the contract or subcontract for default at no cost to the Owner or the FAA.

VETERAN'S PREFERENCE

Reference: 49 USC § 47112(c)

In the employment of labor (excluding executive, administrative, and supervisory positions), the Contractor and all sub-tier contractors must give preference to covered veterans as defined within Title 49 United States Code Section 47112. Covered veterans include Vietnam-era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns (as defined by 15 USC § 632) owned and controlled by disabled veterans. This preference only applies when there are covered veterans readily available and qualified to perform the work to which the employment relates.

DOMESTIC PREFERENCES FOR PROCUREMENTS

Reference: 2 CFR § 200.322
2 CFR Part 200, Appendix II(L)

The Bidder or Offeror certifies by signing and submitting this bid or proposal that, to the greatest extent practicable, the Bidder or Offeror has provided a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including, but not limited to, iron, aluminum, steel, cement, and other manufactured products) in compliance with 2 CFR § 200.322.

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $2,000

COPELAND "ANTI-KICKBACK' ACT

Reference: 2 CFR Part 200, Appendix II(D)
29 CFR Parts 3 and 5

Contractor must comply with the requirements of the Copeland "Anti-Kickback" Act (18 USC 874 and 40 USC 3145), as supplemented by Department of Labor regulation 29 CFR part 3. Contractor and subcontractors are prohibited from inducing, by any means, any person employed on the project to give up any part of the compensation to which the employee is entitled. The Contractor and each Subcontractor must submit to the Owner, a weekly statement on the wages paid to each employee performing on covered work during the prior week. Owner must report any violations of the Act to the Federal Aviation Administration.

DAVIS-BACON REQUIREMENTS

Reference: 2 CFR Part 200, Appendix II(D)
29 CFR Part 5
49 USC § 47112(b)
40 USC §§ 3141-3144, 3146, and 3147

1. Minimum Wages.

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalent thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided,* that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under (1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can easily be seen by the workers.

(ii) (A) thru (D)

(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination;

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the Contractor, the laborers, or mechanics to be employed in the classification, or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii) (B) or (C) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided,* that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor

may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding.

The Federal Aviation Administration or the Sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the Federal Aviation Administration may, after written notice to the Contractor, Sponsor, Applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and Basic Records.

(i) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 1(b)(2)(B) of the Davis-Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records that show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual costs incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii) (A) thru (D)

(A) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit the payrolls to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR § 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually

identifying number for each employee (*e.g.,* the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at *http://www.dol.gov/esa/whd/forms/wh347instr.htm* or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker and shall provide them upon request to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit them to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration, the Contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, Sponsor, or Owner).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR § 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR § 5.5 (a)(3)(i), and that such information is correct and complete;

(2) That each laborer and mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The Contractor or subcontractor shall make the records required under paragraph (3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the Sponsor, the Federal Aviation Administration, or the Department of Labor and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the Contractor, Sponsor, applicant, or Owner, take such action as may be necessary to cause the suspension of any further

payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR § 5.12.

4. Apprentices and Trainees.

(i) Apprentices

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees

Except as provided in 29 CFR § 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be

paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination that provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal Employment Opportunity. The utilization of apprentices, trainees, and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act Requirements.

The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

6. Subcontracts.

The Contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR §§ 5.5(a)(1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR § 5.5.

7. Contract Termination: Debarment.

A breach of the contract clauses in paragraph 1 through 10 of this section may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR § 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements.

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes Concerning Labor Standards.

Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors)

and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of Eligibility.

(i) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR § 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR § 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 USC § 1001.

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $10,000

AFFIRMATIVE ACTION REQUIREMENT

Reference: 41 CFR Part 60-4
Executive Order 11246

Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Timetables:	**Goal:**
Goals for minority participation for each trade:	
Goals for female participation in each trade:	6.9%

These goals are applicable to all of the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a) and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs (OFCCP) within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this notice and in the contract resulting from this solicitation, the "covered area" is:

State	County	City

DISTRACTED DRIVING

Reference: Executive Order 13513
DOT Order 3902.10

In accordance with Executive Order 13513, "Federal Leadership on Reducing Text Messaging While Driving", (10/1/2009) and DOT Order 3902.10, "Text Messaging While Driving", (12/30/2009), the Federal Aviation Administration encourages recipients of Federal grant funds to adopt and enforce safety policies that decrease crashes by distracted drivers, including policies to ban text messaging while driving when performing work related to a grant or subgrant.

In support of this initiative, the Owner encourages the Contractor to promote policies and initiatives for its employees and other work personnel that decrease crashes by distracted drivers, including policies that ban text messaging while driving motor vehicles while performing work activities associated with the project. The Contractor must include the substance of this clause in all sub-tier contracts exceeding $10,000 that involve driving a motor vehicle in performance of work activities associated with the project.

EQUAL EMPLOYMENT OPPORTUNITY (EEO)

Reference: 2 CFR Part 200, Appendix II(C)
41 CFR § 60-1.4
41 CFR § 60-4.3
Executive Order 11246

Equal Opportunity Clause

During the performance of this contract, the Contractor agrees as follows:

(1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, sexual orientation, gender identify, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff, or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

(3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other

employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

(4) The Contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer, advising the labor union or workers' representative of the Contractor's commitments under this section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(5) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any such rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(8) The Contractor will include the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions, including sanctions for noncompliance*: Provided,* however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

Standard Federal Equal Employment Opportunity Construction Contract Specifications

1. As used in these specifications:

   a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

   b. "Director" means Director, Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, or any person to whom the Director delegates authority;

   c. "Employer identification number" means the Federal social security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;

d. "Minority" includes:

(1) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race);

(3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(4) American Indian or Alaskan native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR part 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through 7p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in a geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

    a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

    b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

    c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

    d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

    e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

    f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.;

by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with onsite supervisory personnel such superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other contractors and subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations, which assist in fulfilling one or more of their affirmative action obligations (7a through 7p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant may be asserted as fulfilling any one or more of its obligations under 7a through 7p of these specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.
9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).
10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, sexual orientation, gender identity, or national origin.
11. The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.
12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR part 60-4.8.
14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep

records. Records shall at least include for each employee, the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g. those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

PROHIBITION OF SEGREGATED FACILITIES

Reference: 2 CFR Part 200, Appendix II(C)
41 CFR Part 60-1

(a) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Employment Opportunity clause in this contract.

(b) "Segregated facilities," as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.

(c) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Employment Opportunity clause of this contract.

PROCUREMENT OF RECOVERED MATERIALS

Reference: 2 CFR § 200.323
2 CFR Part 200, Appendix II(J)
40 CFR Part 247
42 USC § 6901, et seq (Resource Conservation and Recovery Act (RCRA))

Contractor and subcontractor agree to comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, and the regulatory provisions of 40 CFR Part 247. In the performance of this contract and to the extent practicable, the Contractor and subcontractors are to use products containing the highest percentage of recovered materials for items designated by the Environmental Protection Agency (EPA) under 40 CFR Part 247 whenever:

a) The contract requires procurement of $10,000 or more of a designated item during the fiscal year; or

b) The contractor has procured $10,000 or more of a designated item using Federal funding during the previous fiscal year.

The list of EPA-designated items is available at www.epa.gov/smm/comprehensive-procurement-guidelines-construction-products.

Section 6002(c) establishes exceptions to the preference for recovery of EPA-designated products if the contractor can demonstrate the item is:

a) Not reasonably available within a timeframe providing for compliance with the contract performance schedule;

b) Fails to meet reasonable contract performance requirements; or

c) Is only available at an unreasonable price.

TERMINATION OF CONTRACT

Reference: 2 CFR Part 200, Appendix II(B)
FAA Advisory Circular 150/5370-10, Section 80-09

Termination for Convenience (Construction & Equipment Contracts)

The Owner may terminate this contract in whole or in part at any time by providing written notice to the Contractor. Such action may be without cause and without prejudice to any other right or remedy of Owner. Upon receipt of a written notice of termination, except as explicitly directed by the Owner, the Contractor shall immediately proceed with the following obligations regardless of any delay in determining or adjusting amounts due under this clause:

1. Contractor must immediately discontinue work as specified in the written notice.
2. Terminate all subcontracts to the extent they relate to the work terminated under the notice.
3. Discontinue orders for materials and services except as directed by the written notice.
4. Deliver to the Owner all fabricated and partially fabricated parts, completed and partially completed work, supplies, equipment and materials acquired prior to termination of the work, and as directed in the written notice.
5. Complete performance of the work not terminated by the notice.
6. Take action as directed by the Owner to protect and preserve property and work related to this contract that Owner will take possession.

Owner agrees to pay Contractor for:

1. Completed and acceptable work executed in accordance with the contract documents prior to the effective date of termination;
2. Documented expenses sustained prior to the effective date of termination in performing work and furnishing labor, materials, or equipment as required by the contract documents in connection with uncompleted work;

3. Reasonable and substantiated claims, costs, and damages incurred in settlement of terminated contracts with Subcontractors and Suppliers; and
4. Reasonable and substantiated expenses to the Contractor directly attributable to Owner's termination action.

Owner will not pay Contractor for loss of anticipated profits or revenue or other economic loss arising out of or resulting from the Owner's termination action.

The rights and remedies this clause provides are in addition to any other rights and remedies provided by law or under this contract.

Termination for Cause (Construction)

Section 80-09 of FAA Advisory Circular 150/5370-10 establishes standard language for conditions, rights, and remedies associated with Owner termination of this contract for cause due to default of the Contractor.

Termination for Cause (Equipment)

The Owner may, by written notice of default to the Contractor, terminate all or part of this Contract for cause if the Contractor:

1. Fails to begin the Work under the Contract within the time specified in the Notice- to-Proceed;
2. Fails to make adequate progress as to endanger performance of this Contract in accordance with its terms;
3. Fails to make delivery of the equipment within the time specified in the Contract, including any Owner approved extensions;
4. Fails to comply with material provisions of the Contract;
5. Submits certifications made under the Contract and as part of their proposal that include false or fraudulent statements; or
6. Becomes insolvent or declares bankruptcy.

If one or more of the stated events occur, the Owner will give notice in writing to the Contractor and Surety of its intent to terminate the contract for cause. At the Owner's discretion, the notice may allow the Contractor and Surety an opportunity to cure the breach or default.

If within ten (10) days of the receipt of notice, the Contractor or Surety fails to remedy the breach or default to the satisfaction of the Owner, the Owner has authority to acquire equipment by other procurement action. The Contractor will be liable to the Owner for any excess costs the Owner incurs for acquiring such similar equipment.

Payment for completed equipment delivered to and accepted by the Owner shall be at the Contract price. The Owner may withhold from amounts otherwise due the Contractor for such completed equipment, such sum as the Owner determines to be necessary to protect the Owner against loss because of Contractor default.

Owner will not terminate the Contractor's right to proceed with the work under this clause if the delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such acceptable causes include: acts of God, acts of the Owner, acts of another Contractor in the performance of a contract with

the Owner, and severe weather events that substantially exceed normal conditions for the location.

If, after termination of the Contractor's right to proceed, the Owner determines that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the Owner issued the termination for the convenience the Owner.

The rights and remedies of the Owner in this clause are in addition to any other rights and remedies provided by law or under this contract.

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $25,000

DEBARMENT AND SUSPENSION

Reference: 2 CFR Part 180 (Subpart B)
2 CFR Part 200, Appendix II(H)
2 CFR Part 1200
DOT Order 4200.5
Executive Orders 12549 and 12689

Certification of Offeror/Bidder Regarding Debarment

By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

Certification of Lower Tier Contractors Regarding Debarment

The successful bidder, by administering each lower tier subcontract that exceeds $25,000 as a "covered transaction", must confirm each lower tier participant of a "covered transaction" under the project is not presently debarred or otherwise disqualified from participation in this federally-assisted project. The successful bidder will accomplish this by:

1. Checking the System for Award Management at website: http://www.sam.gov.
2. Collecting a certification statement similar to the Certification of Offeror /Bidder Regarding Debarment, above.
3. Inserting a clause or condition in the covered transaction with the lower tier contract.

If the Federal Aviation Administration later determines that a lower tier participant failed to disclose to a higher tier participant that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedies, including suspension and debarment of the non-compliant participant.

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $100,000

CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

Reference: 2 CFR Part 200, Appendix II(E)
2 CFR § 5.5(b)
40 USC § 3702
40 USC § 3704

1. Overtime Requirements.

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic, including watchmen and guards, in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; Liability for Unpaid Wages; Liquidated Damages.

In the event of any violation of the clause set forth in paragraph (1) of this clause, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this clause, in the sum of $29 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this clause.

3. Withholding for Unpaid Wages and Liquidated Damages.

The Federal Aviation Administration (FAA) or the Owner shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this clause.

4. Subcontractors.

The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs (1) through (4) and also a clause requiring the subcontractor to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this clause.

LOBBYING AND INFLUENCING FEDERAL EMPLOYEES

Reference: 31 USC § 1352 – Byrd Anti-Lobbying Amendment
2 CFR Part 200, Appendix II(I)
49 CFR Part 20, Appendix A

Certification Regarding Lobbying

The Bidder or Offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Bidder or Offeror, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $150,000

CLEAN AIR AND WATER POLLUTION CONTROL

References: 2 CFR Part 200, Appendix II(G)
42 USC § 7401, et seq
33 USC § 1251, et seq

Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Clean Air Act (42 USC §§ 7401-7671q) and the Federal Water Pollution Control Act as amended (33 USC §§ 1251-1387). The Contractor agrees to report any violation to the Owner immediately upon discovery. The Owner assumes responsibility for notifying the Environmental Protection Agency (EPA) and the Federal Aviation Administration.

The Contractor must include this requirement in all subcontracts that exceed $150,000.

PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING $250,000

BREACH OF CONTRACT TERMS

Reference: 2 CFR § 200 Appendix II(A)

Any violation or breach of terms of this contract on the part of the Contractor or its subcontractors may result in the suspension or termination of this contract or such other action that may be necessary to enforce the rights of the parties of this agreement.

Owner will provide Contractor written notice that describes the nature of the breach and corrective actions the Contractor must undertake in order to avoid termination of the contract. Owner reserves the right to withhold payments to Contractor until such time the Contractor corrects the breach or the Owner elects to terminate the contract. The Owner's notice will identify a specific date by which the Contractor must correct the breach. Owner may proceed with termination of the contract if the Contractor fails to correct the breach by the deadline indicated in the Owner's notice.

The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder are in addition to, and not a limitation of, any duties, obligations, rights and remedies otherwise imposed or available by law.

DISADVANTAGED BUSINESS ENTERPRISE

Reference: 49 CFR Part 26

Solicitation Language (Solicitations that include a Contract Goal)

*Bid Information Submitted as a matter of **responsiveness**:*

The Owner's award of this contract is conditioned upon Bidder or Offeror satisfying the good faith effort requirements of 49 CFR § 26.53.

As a condition of responsiveness, the Bidder or Offeror must submit the following information with its proposal on the forms provided herein:

1) The names and addresses of Disadvantaged Business Enterprise (DBE) firms that will participate in the contract;
2) A description of the work that each DBE firm will perform;
3) The dollar amount of the participation of each DBE firm listed under (1);
4) Written statement from Bidder or Offeror that attests their commitment to use the DBE firm(s) listed under (1) to meet the Owner's project goal;
5) Written confirmation from each listed DBE firm that it is participating in the contract in the kind and amount of work provided in the prime contractor's commitment; and
6) If Bidder or Offeror cannot meet the advertised project DBE goal, evidence of good faith efforts undertaken by the Bidder or Offeror as described in appendix A to 49 CFR part 26. The documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract.

*Bid Information submitted as a matter of bidder **responsibility**:*

The Owner's award of this contract is conditioned upon Bidder or Offeror satisfying the good faith effort requirements of 49 CFR § 26.53.

As a condition of responsibility, every Bidder or Offeror must submit the following information on the forms provided herein within five days after bid opening.

1) The names and addresses of Disadvantaged Business Enterprise (DBE) firms that will participate in the contract;
2) A description of the work that each DBE firm will perform;
3) The dollar amount of the participation of each DBE firm listed under (1);
4) Written statement from Bidder or Offeror that attests their commitment to use the DBE firm(s) listed under (1) to meet the Owner's project goal;
5) Written confirmation from each listed DBE firm that it is participating in the contract in the kind and amount of work provided in the prime contractor's commitment; and
6) If Bidder or Offeror cannot meet the advertised project DBE goal, evidence of good faith efforts undertaken by the Bidder or Offeror as described in appendix A to 49 CFR part 26. The documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract.

Solicitation Language (Race/Gender Neutral Means)

The requirements of 49 CFR part 26 apply to this contract. It is the policy of the Owner to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract. The Owner encourages participation by all firms qualifying under this solicitation regardless of business size or ownership.

Prime Contracts (Contracts Covered by a DBE Program)

Contract Assurance (49 CFR § 26.13)

The Contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

1) Withholding monthly progress payments;
2) Assessing sanctions;
3) Liquidated damages; and/or
4) Disqualifying the Contractor from future bidding as non-responsible.

Prompt Payment (49 CFR § 26.29)

The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than thirty (30) calendar days from the receipt of each payment the prime contractor receives from Owner. The prime contractor agrees

further to return retainage payments to each subcontractor within thirty (30) calendar days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the Owner. This clause applies to both DBE and non-DBE subcontractors.

Termination of DBE Subcontracts (49 CFR § 26.53(f))

The prime contractor must not terminate a DBE subcontractor listed in response to the above *Solicitation Language (Solicitations that include a Contract Goal)* section (or an approved substitute DBE firm) without prior written consent of Owner. This includes, but is not limited to, instances in which the prime contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm.

The prime contractor shall utilize the specific DBEs listed to perform the work and supply the materials for which each is listed unless the contractor obtains written consent from the Owner. Unless the Owner's consent is provided, the prime contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the listed DBE.

The Owner may provide such written consent only if the Owner agrees, for reasons stated in the concurrence document, that the prime contractor has good cause to terminate the DBE firm. For purposes of this paragraph, good cause includes the circumstances listed in 49 CFR §26.53.

Before transmitting to the Owner its request to terminate and/or substitute a DBE subcontractor, the prime contractor must give notice in writing to the DBE subcontractor, with a copy to the Owner, of its intent to request to terminate and/or substitute, and the reason for the request.

The prime contractor must give the DBE five days to respond to the prime contractor's notice and advise the Owner and the contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why the Owner should not approve the prime contractor's action. If required in a particular case as a matter of public necessity (e.g., safety), the Owner may provide a response period shorter than five days.

In addition to post-award terminations, the provisions of this section apply to preaward deletions of or substitutions for DBE firms put forward by offerors in negotiated procurements.

REPORT OF SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING EVALUATION

KCI TAXIWAY E REHABILITATION
KANSAS CITY, MISSOURI
TSI PROJECT NUMBER 20212063

HNTB CORPORATION
715 Kirk Drive
Kansas City, Missouri 64105

TSi geotechnical, inc.

8248 NW 101st Terrace, #5
Kansas City, Missouri 64153

February 25, 2022

8248 NW 101st Terrace, #5
Kansas City, MO 64153
816.599.7965 (tel)
816.599.7967 (fax)

www.tsigeotech.rocks

PROFESSIONAL SERVICES SINCE 1989

February 25, 2022

Mr. Matthew Walsh, P.E.
HNTB CORPORATION
715 Kirk Drive
Kansas City, Missouri 64105

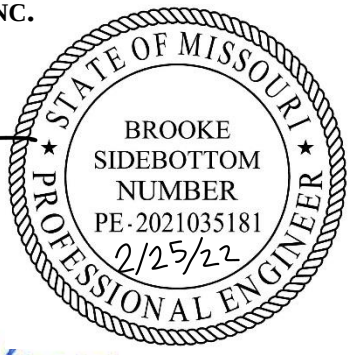
Re: Report of Subsurface Exploration and Geotechnical Engineering Evaluation
KCI Taxiway E Rehabilitation
Kansas City, Missouri
TSi Project No. 20212063

Dear Mr. Walsh:

TSi Geotechnical, Inc. (TSi) has completed the authorized subsurface exploration and geotechnical engineering evaluation for the referenced project and is pleased to submit this report of our findings to HNTB Corporation (HNTB). The purpose of our work was to determine subsurface conditions at specific exploration locations and to gather data on which to prepare geotechnical recommendations for the design and construction of the proposed improvements to Taxiway E pavements at the Kansas City International Airport in Kansas City, Missouri. This report describes the exploration procedures used, documents the data obtained, and presents our evaluations and recommendations relative to the geotechnical engineering aspects of the project.

We appreciate the opportunity to assist you with this project. If you have any questions, or if we may be of further service to you, please call us.

Respectfully submitted,
TSI GEOTECHNICAL, INC.



Brooke Sidebottom, PE
Project Manager

Denise B. Hervey, PE
Principal

Morris Dirnberger, PE
Senior Geotechnical Engineer

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SUBSURFACE EXPLORATION AND
GEOTECHNICAL ENGINEERING EVALUATION
KCI TAXIWAY E REHABILITATION
KANSAS CITY, MISSOURI

1.0 SCOPE OF SERVICES

This report summarizes the results of a geotechnical study performed for the proposed pavement rehabilitation of Taxiway E at the Kansas City International Airport in Kansas City, Missouri. The study was performed in general accordance with TSi's proposal to HNTB, dated June 24, 2021, which identified the following items for inclusion in this study report:

- Subsurface conditions at the boring locations;
- Laboratory test results for soil samples;
- Influence of groundwater on the project;
- Subgrade recommendations;
- Pavement core photos and pavement surface photos;
- Construction considerations; and,
- Recommendations for engineering observation and testing during construction.

2.0 SITE AND PROJECT DESCRIPTIONS

TSi understands that the project will include the pavement rehabilitation of Taxiway E at the Kansas City International Airport in Kansas City, Missouri. The general location of the project site is shown below. The Site and Boring Location Plans, Figures 1a and 1b in Appendix A, provide a more detailed plan of the project area.



3.0 FIELD EXPLORATION AND LABORATORY TESTING

3.1 FIELD EXPLORATION

TSi conducted an exploration program on December 2nd and 3rd, 2021. The exploration consisted of completing six soil borings designated as C-3B, C-5B, C-8B, C-10B, C-13B, and C-15B and twenty pavement cores designated as C-1 through C-20. Bulk samples were obtained from Borings C-3B, C-8B, and C13B to depths of approximately 4 feet. Two Dynamic Cone Penetrometer (DCP) tests were also performed in the locations of C-6 and C-11. The approximate locations of the borings and pavement cores are indicated on the Site and Boring Location Plans, Figures 1a and 1b in Appendix A. The boring logs from this exploration are included in Appendix B. The DCP test results are included in Appendix C. The boring locations were selected and marked in the field by HNTB.

All borings were drilled using a CME-550 ATV-mounted drill rig to advance continuous flight auger drilling tools to the requested depth. A geotechnical specialist from TSi directed the exploration procedures in the field, maintained a field log of the conditions encountered in the borings, and collected and classified the samples recovered. Split-spoon samples were recovered from the borings using a 2-inch outside-diameter, split-barrel sampler, driven by an automatic hammer in accordance with ASTM D 1586. Three-inch Shelby tube samples were obtained in accordance with ASTM D 1587. The Shelby tube samples were preserved by sealing the entire sample in the tube. Borings were backfilled with auger cuttings and a sand and gravel mixture, compacted with the drill auger and the pavement replaced with a quick setting grout patch. Any excess cuttings were swept up and removed from the site.

The results of the field tests and measurements were recorded on field logs and appropriate data sheets by TSi's geotechnical specialist. Those data sheets and logs contain information concerning the exploration methods, samples attempted and recovered, indications of the presence of various subsurface materials, and the observation of groundwater. The field logs and data sheets contain the engineer's interpretations of the conditions between samples, based on the performance of the exploration equipment and the cuttings brought to the surface. The final logs included in this report were based on the field logs, modified as appropriate based on the results of laboratory testing of soil samples.

3.2 LABORATORY TESTING

A laboratory testing program was conducted by TSi to determine selected engineering properties of the obtained soil samples. The following laboratory tests were performed on the samples recovered from the borings:

- Visual description by color and texture of each sample (ASTM 2488);
- Natural moisture content of each sample (ASTM D 2216);
- Atterberg limits on selected cohesive samples (ASTM D 4318);
- Unit weight of selected cohesive samples (ASTM D 7263);
- Unconfined compressive strengths on selected cohesive samples (ASTM D 2166);
- Modified Proctor compaction of selected samples (ASTM D 1557); and
- California Bearing Ratio (CBR) (ASTM D 1883).

The results of most of the laboratory tests are summarized on the boring logs. Results of the Modified Proctors and CBRs are included in Appendix C, along with the field DCP test results. The analyses and conclusions contained in this report are based on field and laboratory test results and on the interpretations of the subsurface conditions as reported on the logs. Only data pertinent to the objectives of this report have been included on the logs; therefore, these logs should not be used for other purposes.

4.0 SUBSURFACE CONDITIONS

Details of the subsurface conditions encountered at the boring locations are shown on the logs in Appendix B. The general subsurface conditions encountered and their pertinent engineering characteristics are described in the following paragraphs. Conditions represented by the borings should be considered applicable only at these locations on the dates shown; the reported conditions may be different at other locations or at other times.

4.1 GENERALIZED SUBSURFACE PROFILE

The surficial materials at all of the boring locations and at some of the pavement core locations (Cores C-1, C-2, C-4, C-6, C-7, C-9, C-11, C-12, and C-14) generally consisted of approximately 23.0 to 25.25 inches of Portland Cement Concrete (PCC). The surficial materials encountered at pavement core locations C-16 to C-20 consisted of approximately 7.75 to 10.25 inches of Asphaltic Concrete. Borings C-3B, C-10B, C-13B, and C-15B were underlain by varying amounts of crushed limestone baserock.

The surficial materials at Boring C-3B were underlain by native fat clay (CH, in accordance with the Unified Soil Classification System (USCS)) with trace amounts of gravel to a depth of approximately 4.0 feet. Standard penetration test (N-value) in the native fat clay was 16 blows per foot (bpf). Moisture content within the fat clay layer was 28%. An Atterberg Limit test performed on the fat clay resulted in a liquid limit (LL) of 51 and a plasticity index (PI) of 33.

The native fat clay at Boring C-3B and the surficial materials at the remaining boring locations were generally underlain by native lean clays (CL, in accordance with the USCS) with various amounts of gravel. Standard penetration tests (N-values) in the native lean clays ranged from 7 blows per foot (bpf) to 27 bpf. Moisture contents ranged from 11% to 27%. Atterberg tests performed within the lean clays resulted in liquid limits (LL) of 37 to 45 and plasticity indexes (PI) of 13 to 29. Dry unit weight and undrained shear strength values on the native lean clay material ranged from 100 to 109 pcf and 0.94 to 2.12 tons per square foot, respectively. The native soils continued to a termination depth of approximately ten feet at all boring locations.

4.2 GROUNDWATER

Groundwater was not observed during drilling at the boring locations. The presence or absence of groundwater at a particular location does not necessarily mean that groundwater will be present or absent at that location at other times. Seasonal variations and other unknown considerations will cause fluctuations in water levels and the presence of water in the soils.

5.0 Engineering Assessments and Recommendations

5.1 Swelling Clay Considerations

High plasticity clay will likely be exposed during grading in some areas of the site below the proposed pavements. The fat clays are of concern with regard to their potential for volume change. This concern applies to these materials whether they are in their natural condition or used as fill material. These materials tend to swell when they absorb water and shrink when they dry out. Potential detrimental effects for development of the site include heaving, settlement, and differential movements of pavements constructed directly over these materials.

All high plasticity clays (CH) should be overexcavated from beneath the pavements to a minimum depth of 24 inches. These materials should be replaced with Low Volume Change (LVC) fill material as discussed in Section 6.3 of this report. In addition to removal and replacement, some relatively simple design and construction considerations are recommended that will help to maintain the natural moisture contents of the fat clay. Avoiding conditions that could result in excessive wetting or drying of these materials will reduce their potential for volume change. The following design and construction precautions are recommended:

1. High plasticity clay should not be used as fill or backfill material in the upper 24 inches of the pavement areas.
2. High plasticity clay used as fill below 24 inches of the pavement areas should be placed and compacted wet of its optimum moisture content, as discussed in Section 6.3 of this report.
3. Positive surface drainage should be provided during and after construction to prevent ponding of water on or adjacent to pavements.
4. Excessive watering of grass or shrubs adjacent to the pavements should be avoided.

These considerations should be incorporated into the site grading and development plans for the project. In addition, individual pavement areas should be observed during construction to determine the specific soil conditions that exist at that location and the most prudent approach for mitigating any swelling soil concerns.

5.2 Pavement Subgrade Recommendations

TSi recommends a well-graded aggregate base, such as MoDOT Type 5 or equivalent, directly underlying the pavements with a minimum thickness of 6 inches. Fill material below the pavements should consist of a minimum of 24 inches of LVC material consistent with requirements outlined in Section 6.3 of this report. If high-plasticity clays are encountered, they should be overexcavated to a depth of 24 inches below pavement subgrade and replaced with LVC material.

Three modified Proctor tests were conducted on bulk soil samples obtained from approximately 0 to 4 feet in depth at Borings C-3B, C-8B, and C-13B. The tests yielded maximum dry density results of 110.1, 111.7, and 115.3 pounds per cubic foot (pcf) and optimum moisture content results

of 16.3%, 16.3%, and 15.1%, respectively. Three California Bearing Ratio (CBR) tests of the native soil were also conducted. These tests resulted in CBR values ranging from 2.5 to 4.3. The modified Proctor and CBR test results are included in Appendix C of this report. A summary of the results is presented in Table 1 below. Based on the general character of the on-site subsurface conditions and assuming a properly prepared subgrade, a CBR value of 3.0 is considered appropriate for use in designing the new flexible pavement sections for the site.

New rigid pavement design can be based on a modulus-of-subgrade reaction (k) of 55 pounds per cubic inch (pci) for the subgrade. These values for rigid and flexible pavement design are based on the requirement that the pavement subgrade is prepared in accordance with the recommendations provided in this report.

Stabilization of the subgrade will provide a stiffer, more durable subgrade, which will improve the durability of the pavements. It will also provide a subgrade that is less prone to disturbance under construction traffic, especially during rainy weather. If the design team desires to increase the CBR value of the subgrade, subgrade stabilization with fly ash or lime is recommended. Our experience indicates that CBR values of up to 15 to 20 can be achieved with fly ash-treated subgrade. The CBR value for lime treated soils will be greater than the CBR values measured in the native clay. The stabilized soils should be compacted as recommended in Section 6.4 of this report. The CBR value used in design for treated soils should be verified during construction using dynamic cone penetrometer (DCP) tests.

A lime- or fly ash-treated Proctor and CBR testing was not included in the scope of this exploration. The exact amount of lime or fly ash application should be determined in the laboratory before construction begins. If requested, TSi can perform additional services to determine the optimal percentage of fly ash or lime application in the laboratory using additional soil samples from the site to perform modified Proctor and CBR tests at varying fly ash or lime percentages.

TABLE 1
SUMMARY OF MODIFIED PROCTOR AND CBR TESTS

Bulk Sample Location	Sample Depth (Feet)	USCS	Optimum Moisture Content (%)	Maximum Dry Density (pcf)	Dry Density at 95% Compaction (pcf)	CBR Value
C-3B	0 to 4	CH LL=51 PI=33	16.3	110.1	104.6	4.3
C-8B	0 to 4	CL LL=44 PI=26	16.3	111.7	106.1	3.0
C-13B	0 to 4	CL LL=45 PI=27	15.1	115.3	109.5	2.5

USCS = Unified Soil Classification System, Maximum dry density as determined by ASTM D 1557
pcf = pounds per cubic foot

6.0 Site Preparation and Excavation Considerations

6.1 Subgrade Preparation

Construction areas should be stripped of existing pavement, organic soil, and any deleterious materials prior to site excavation and grading. Care should be taken during stripping to prevent excessive disturbance of the underlying soil. After the removal of these materials, and where further excavation is not required, the exposed subgrade should be proofrolled. Proofrolling is accomplished by passing over the subgrade with proper equipment, such as a loaded tandem-axle dump truck or scraper, and observing the subgrade for pockets of excessively soft, wet, disturbed, or otherwise unsuitable soils. Any unacceptable materials thus found should be excavated and either recompacted or replaced with new structural fill.

Prior to placing fill in any area, the subgrade should be scarified to a depth of about 6 inches, the moisture content adjusted to near its optimum moisture content, and the subgrade recompacted in accordance with recommendations made in subsequent sections of this report. The recommended proofrolling and/or scarification and recompaction may be waived if, in the opinion of a geotechnical engineer, this procedure would be detrimental or unnecessary. Following satisfactory preparation of the subgrade, controlled fill material may be placed.

6.2 Subgrade Protection

Construction areas should be properly drained in order to reduce or prevent surface runoff from collecting on the exposed subgrade. Any ponded water on the exposed subgrade should be removed immediately. Temporary stormwater swales and collection areas may be required to control surface water flow into low areas of the site.

To prevent unnecessary disturbance of the subgrade soils, heavy construction vehicles should be restricted from traveling through the finished subgrade. If areas of disturbed subgrade develop, they should be properly repaired in accordance with the recommendations in this report.

Immediately prior to construction of the pavement, it is recommended that the exposed subgrade be evaluated to determine whether moisture contents are within the recommended range and to identify areas disturbed by construction operations. Moisture conditioning of wet or dry areas is recommended prior to construction of the pavement section. Areas disturbed by construction traffic should be reworked.

6.3 Fill and Backfill Materials

In general, fills should consist of clay or well-graded granular materials with a maximum particle size of 2 inches. Low volume change (LVC) fill should consist of approved, well-graded granular materials or low to moderate plasticity cohesive soil. Low to moderate plasticity cohesive materials used as LVC fill should consist of inorganic clay with a liquid limit less than 45 and a plasticity index of less than 25. Some of the soils encountered in the borings are suitable for use as fill. Fill materials from off-site sources should be approved prior to their use. Soil with decayable material such as wood, trash, metal, or vegetation is typically not acceptable.

Some of the fill material may require the addition of moisture prior to compaction. This should be performed in a controlled manner using a tank truck with a spray bar, and the moistened soil should be thoroughly blended with a disk or pulverizer to produce a uniform moisture content. Repeated passages of the equipment may be required to achieve a uniform moisture content. If fill is placed during the winter season, fill materials should be carefully observed to see that no ice or frozen soils are placed as fill or remain in the base materials upon which fill is placed.

Some of the fill material may require moisture reduction prior to compaction. During warm weather, moisture reduction can generally be accomplished by disking, or otherwise aerating the soil. When air-drying is not possible, a moisture-reducing chemical additive, such as lime or Class C fly ash, may be used as a drying agent.

6.4 Fill and Backfill Placement

Cohesive fill should be compacted to a dry density of at least 95% of the modified Proctor maximum dry density (ASTM D 1557) of the soil. Granular material, such as crushed limestone, placed for structure or pavement support, should be compacted to at least 100% of the modified Proctor maximum dry density. The moisture content of lean clay or granular fill at the time of compaction should be within ±2% of the optimum moisture content of the material as determined by the modified Proctor compaction test. The moisture content of fat clay fill materials should be from the optimum moisture content to 4% above optimum. Fill should be placed in loose lifts not in excess of 8 inches thick, and compacted to the aforementioned criterion. However, it may be necessary to place fill in thinner lifts to achieve the recommended compaction when using small hand-operated equipment.

7.0 CONSTRUCTION OBSERVATION AND TESTING

It is recommended that TSi be retained during construction to perform testing and observation services for the following items:

- Observation and documentation of the exposed soil after stripping topsoil and/or pavement, during scarification, compaction, and proofrolling;
- Testing of asphalt and/or concrete materials used for paving; and,
- Placement and compaction of fill materials.

These Quality Assurance services should help verify the design assumptions and maintain construction procedures in accordance with the project plans, specifications, and good engineering practice.

8.0 REPORT LIMITATIONS

This geotechnical report has been prepared for the exclusive use of **HNTB CORPORATION** for the specific application to the subject project. The information and recommendations contained in this report have been made in accordance with generally accepted geotechnical and foundation engineering practices; no other warranties are implied or expressed.

The assessments and recommendations submitted in this report are based in part upon the data obtained from the borings. The nature and extent of variations between the borings may not be evident at this time. If variations appear evident at a later date, it may be necessary to re-evaluate the recommendations of this report.

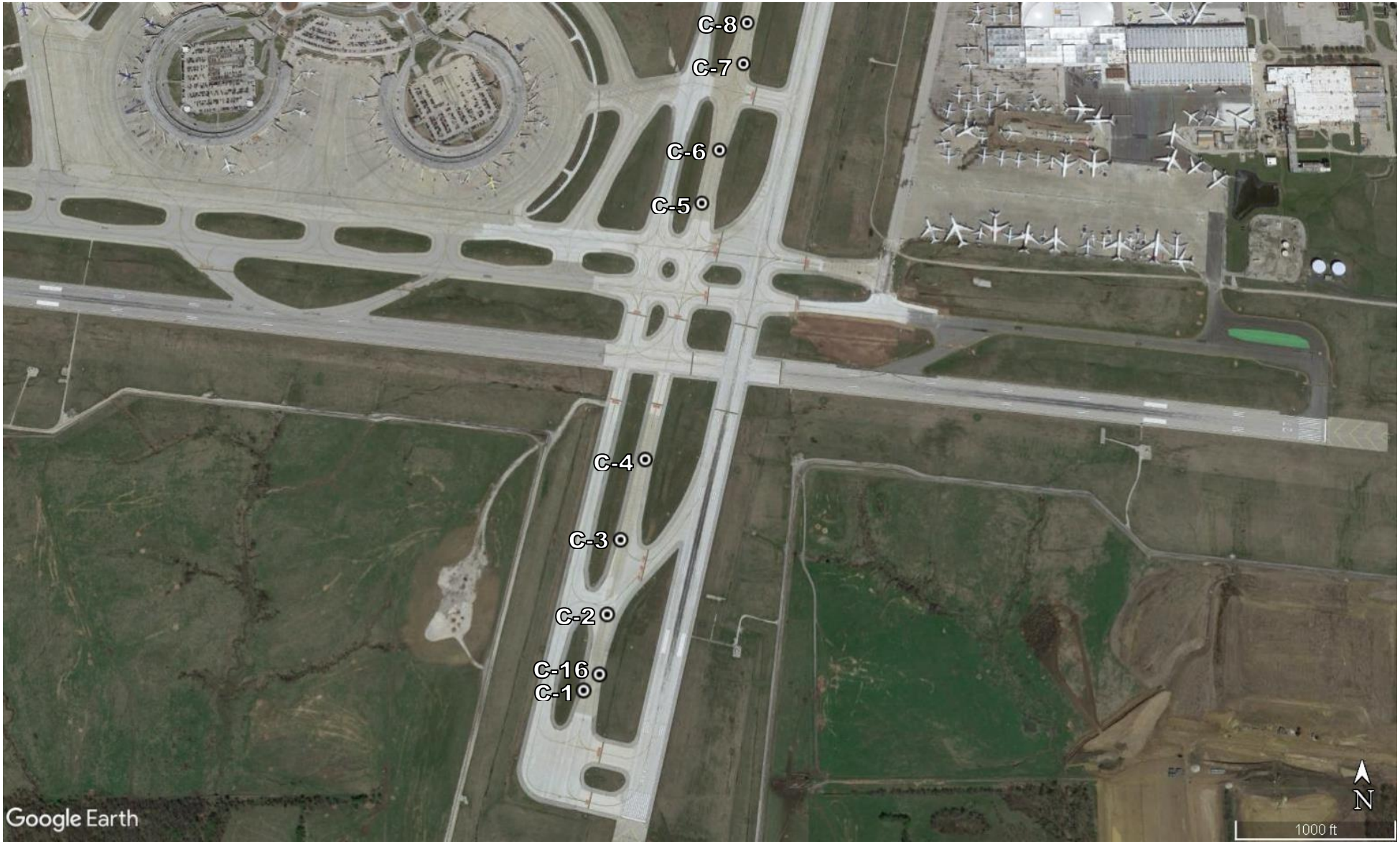
We emphasize that this report was prepared for design purposes only and may not be sufficient to prepare an accurate construction bid. Contractors reviewing this report should acknowledge that the information and recommendations contained herein are for design purposes.

If conditions at the site have changed due to natural causes or other operations, this report should be reviewed by TSi to determine the applicability of the analyses and recommendations considering the changed conditions. The report should also be reviewed by TSi if changes occur in the project location, size, and type, in the planned loads, elevations, grading and site development plans or the project concepts.

TSi requests the opportunity to review the final plans and specifications for the project prior to construction to verify that the recommendations in this report are properly interpreted and incorporated in the design and construction documents. If TSi is not accorded the opportunity to make this recommended review, we can assume no responsibility for the misinterpretation of our recommendations.

APPENDIX A

Site and Boring Location Plan



Legend

Boring/Core Location

N W E S

Figure 1a, Site & Boring Location Plan	Project No. 20212063
KCI Airport Taxiway E Kansas City, MO	
Not to Scale	Approved by: JM

TSi geotechnical, inc.



Legend

Boring/Core Location

N
W E
S

Figure 1b, Site & Boring Location Plan	Project No. 20212063
KCI Airport Taxiway E Kansas City, MO	
Not to Scale	Approved by: JM

TSi geotechnical, inc.

APPENDIX B

Boring Logs
General Notes
Unified Soil Classification System

LOG OF BORING NO. C-3B

Project Description: **KCI Taxiway E**
Kansas City, MO

TSi Geotechnical Inc.
1600 Genessee Street, Suite 960
Kansas City, Missouri 64102
(816) 283-3838 (816) 283-3938 FAX

Surface El.: **Not surveyed**
Location: **See Site and Location Plan**

Depth, feet	Samples	Sample #	Graphic Log	MATERIAL DESCRIPTION	Recovery %	RQD	Penetration Blows Per 6 inches	Hand Penetrometer, Qu TSF	Undrained Shear Strength, TSF	Unit Dry Weight, lb/cu ft.	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index
				CONCRETE (24.5")										
				GRAVEL BASE (1.0")										
		SS-1		Brown, fat CLAY (CH), trace gravel	56		6 9 7	>4.5			28			
5		SS-2		Brown, lean CLAY (CL)	78		2 3 4	1.50			24			
		ST-3			100			2.00	1.23	103	23			
		SS-4			100		4 5 7	3.00			25			
10				Boring terminated at 10.0 ft.										
15														
20														
25														

Completion Depth: 10.0
Date Boring Started: 12/2/21
Date Boring Completed: 12/2/21
Engineer/Geologist: JM
Project No.: 20212063

Remarks: Boring drilled with CME-550 using FA and auto SPT. Groundwater not encountered during drilling.

The stratification lines represent approximate strata boundaries. In situations, the transition may be gradual.

KC LOG WITH LAB KCI TAXIWAY E GINT LOGS.GPJ 1/20/22

LOG OF BORING NO. C-5B

Project Description: **KCI Taxiway E**
Kansas City, MO

TSi Geotechnical Inc.
1600 Genessee Street, Suite 960
Kansas City, Missouri 64102
(816) 283-3838 (816) 283-3938 FAX

Surface El.: **Not surveyed**
Location: **See Site and Location Plan**

Depth, feet	Samples	Sample #	Graphic Log	MATERIAL DESCRIPTION	Recovery %	RQD	Penetration Blows Per 6 inches	Hand Penetrometer, Qu TSF	Undrained Shear Strength, TSF	Unit Dry Weight, lb/cu ft.	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index
				CONCRETE (24.5")										
		SS-1		Gray, lean CLAY (CL), trace gravel	22		7 6 4				17			
				- no gravel below 4.0 ft.										
5		ST-2			100			2.75	1.25	106	22	45	17	28
				- brown and gray from 6.0 to 7.4 ft.			6							
		SS-3			94		7 4	3.00			21			
				- dark brown below 7.4 ft.										
		SS-4			67		3 5 9	4.50			21			
10				Boring terminated at 10.0 ft.										
15														
20														
25														

Completion Depth: 10.0
Date Boring Started: 12/2/21
Date Boring Completed: 12/2/21
Engineer/Geologist: JM
Project No.: 20212063

Remarks: Boring drilled with CME-550 using FA and auto SPT. Groundwater not encountered during drilling.

The stratification lines represent approximate strata boundaries. In situations, the transition may be gradual.

KC LOG WITH LAB KCI TAXIWAY E GINT LOGS.GPJ 1/20/22

LOG OF BORING NO. C-8B

Project Description: **KCI Taxiway E**
Kansas City, MO

TSi Geotechnical Inc.
1600 Genessee Street, Suite 960
Kansas City, Missouri 64102
(816) 283-3838 (816) 283-3938 FAX

Surface El.: **Not surveyed**
Location: **See Site and Location Plan**

Depth, feet	Samples	Sample #	Graphic Log	MATERIAL DESCRIPTION	Recovery %	RQD	Penetration Blows Per 6 inches	Hand Penetrometer, Qu TSF	Undrained Shear Strength, TSF	Unit Dry Weight, lb/cu ft.	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index
				CONCRETE (24.75")										
		SS-1		Gray, lean CLAY (CL), trace gravel	61		11 16 11	2.50			19			
5		SS-2		- brown, no gravel below 4.0 ft.	100		4 6 10	>4.5			20			
		SS-3			83		3 7 9	4.50			20			
		ST-4			75			4.00	2.12	108	21			
10				Boring terminated at 10.0 ft.										
15														
20														
25														

Completion Depth: 10.0
Date Boring Started: 12/2/21
Date Boring Completed: 12/2/21
Engineer/Geologist: JM
Project No.: 20212063

Remarks: Boring drilled with CME-550 using FA and auto SPT. Groundwater not encountered during drilling.

The stratification lines represent approximate strata boundaries. In situations, the transition may be gradual.

KC LOG WITH LAB KCI TAXIWAY E GINT LOGS.GPJ 1/20/22

LOG OF BORING NO. C-10B

Project Description: **KCI Taxiway E**
Kansas City, MO

TSi Geotechnical Inc.
1600 Genessee Street, Suite 960
Kansas City, Missouri 64102
(816) 283-3838 (816) 283-3938 FAX

Surface El.: **Not surveyed**
Location: **See Site and Location Plan**

Depth, feet	Samples	Sample #	Graphic Log	MATERIAL DESCRIPTION	Recovery %	RQD	Penetration Blows Per 6 inches	Hand Penetrometer, Qu TSF	Undrained Shear Strength, TSF	Unit Dry Weight, lb/cu ft.	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index
				CONCRETE (23.0")										
				GRAVEL BASE (1.5")										
		SS-1		Dark gray, lean CLAY (CL)	44		6 6 4	>4.5			23	37	24	13
				- brown and gray from 4.0 to 6.5 ft.										
5		ST-2			71			2.50	0.94	102	26			
				- gray below 6.5 ft.										
		SS-3			100		3 5 7	2.75			24			
		SS-4			100		3 6 7	3.00			21			
10				Boring terminated at 10.0 ft.										
15														
20														
25														

Completion Depth: 10.0
Date Boring Started: 12/2/21
Date Boring Completed: 12/2/21
Engineer/Geologist: JM
Project No.: 20212063

Remarks: Boring drilled with CME-550 using FA and auto SPT. Groundwater not encountered during drilling.

The stratification lines represent approximate strata boundaries.
In situations, the transition may be gradual.

KC LOG WITH LAB KCI TAXIWAY E GINT LOGS.GPJ 1/20/22

LOG OF BORING NO. C-13B

Project Description: **KCI Taxiway E**
Kansas City, MO

TSi Geotechnical Inc.
1600 Genessee Street, Suite 960
Kansas City, Missouri 64102
(816) 283-3838 (816) 283-3938 FAX

Surface El.: **Not surveyed**
Location: **See Site and Location Plan**

Depth, feet	Samples	Sample #	Graphic Log	MATERIAL DESCRIPTION	Recovery %	RQD	Penetration Blows Per 6 inches	Hand Penetrometer, Qu TSF	Undrained Shear Strength, TSF	Unit Dry Weight, lb/cu ft.	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index
				CONCRETE (25.25")										
				GRAVEL BASE (2.0")										
		SS-1		Gray, lean CLAY (CL)	33		6 8 4	4.00			18			
				- brown from 4.0 to 6.0 ft.										
5		SS-2			100		3 5 7	2.50			21			
				- gray from 6.0 to 8.5 ft.										
		ST-3			100			2.25	1.12	100	27			
				- brown below 8.5 ft.										
		SS-4			100		6 8 4	4.00			22			
10				Boring terminated at 10.0 ft.										
15														
20														
25														

Completion Depth: 10.0
Date Boring Started: 12/2/21
Date Boring Completed: 12/2/21
Engineer/Geologist: JM
Project No.: 20212063

Remarks: Boring drilled with CME-550 using FA and auto SPT. Groundwater not encountered during drilling.

The stratification lines represent approximate strata boundaries. In situations, the transition may be gradual.

KC LOG WITH LAB KCI TAXIWAY E GINT LOGS.GPJ 1/20/22

LOG OF BORING NO. C-15B

Project Description: **KCI Taxiway E**
Kansas City, MO

TSi Geotechnical Inc.
1600 Genessee Street, Suite 960
Kansas City, Missouri 64102
(816) 283-3838 (816) 283-3938 FAX

Surface El.: **Not surveyed**
Location: **See Site and Location Plan**

Depth, feet	Sample #	MATERIAL DESCRIPTION	Recovery %	RQD	Penetration Blows Per 6 inches	Hand Penetrometer, Qu TSF	Undrained Shear Strength, TSF	Unit Dry Weight, lb/cu ft.	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index
		CONCRETE (23.5")										
		BASE GRAVEL (3.5")			8							
	SS-1	Gray, lean CLAY (CL)	33		5 4	>4.5			26			
		- brown below 4.0 ft.										
5	ST-2		100			>4.5	1.41	109	18	45	16	29
	SS-3		100		6 8 10	2.75			19			
	SS-4	- with sand below 8.5 ft.	44		10 13 12				11			
10		Boring terminated at 10.0 ft.										
15												
20												
25												

Completion Depth: 10.0
Date Boring Started: 12/2/21
Date Boring Completed: 12/2/21
Engineer/Geologist: JM
Project No.: 20212063

Remarks: Boring drilled with CME-550 using FA and auto SPT. Groundwater not encountered during drilling.

The stratification lines represent approximate strata boundaries. In situations, the transition may be gradual.

KC LOG WITH LAB KCI TAXIWAY E GINT LOGS.GPJ 1/20/22

GENERAL NOTES

The number of borings is based on: topographic and geologic factors; the magnitude of structure loading; the size, shape, and value of the structure; consequences of failure; and other factors. The type and sequence of sampling are selected to reduce the possibility of undiscovered anomalies and maintain drilling efficiency. Attempts are made to detect and/or identify occurrences during drilling and sampling such as the presence of water, boulders, gas, zones of lost circulation, relative ease or resistance to drilling progress, unusual sample recovery, variation in resistance to driving split-spoon samplers, unusual odors, etc. However, lack of notation regarding these occurrences does not preclude their presence.

Although attempts are made to obtain stabilized groundwater levels, the levels shown on the Logs of Boring may not have stabilized, particularly in more impermeable cohesive soils. Consequently, the indicated groundwater levels may not represent present or future levels. Groundwater levels may vary significantly over time due to the effects of precipitation, infiltration, or other factors not evident at the time indicated.

Unless otherwise noted, soil classifications indicated on the Logs of Boring are based on visual observations and are not the result of classification tests. Although visual classifications are performed by experienced technicians or engineers, classifications so made may not be conclusive.

Generally, variations in texture less than one foot in thickness are described as layers within a stratum, while thicker zones are logged as individual strata. However, minor anomalies and changes of questionable lateral extent may appear only in the verbal description. The lines indicating changes in strata on the Logs of Borings are approximate boundaries only, as the actual material change may be between samples or may be a gradual transition.

Samples chosen for laboratory testing are selected in such a manner as to measure selected physical characteristics of each material encountered. However, as samples are recovered only intermittently and not all samples undergo a complete series of tests, the results of such tests may not conclusively represent the characteristics of all subsurface materials present.

NOTATION USED ON BORING LOGS

APPROXIMATE PROPORTIONS

TRACE	<15%
WITH	15-30%
MODIFIER	>30%

Clay or clayey may be used as major material or modifier, regardless of relative proportions, if the clay content is sufficient to dominate the soil properties.

PARTICLE SIZE

BOULDERS		>12 Inches
COBBLES		12 Inches – 3 Inches
GRAVEL		
	Coarse	3 Inches – ¾ Inch
	Fine	¾ Inch – No. 4 Sieve (4.750 mm)
SAND		
	Coarse	No. 4 – No. 10 Sieve (2.000 mm)
	Medium	No. 10 – No. 40 Sieve (0.420 mm)
	Fine	No. 40 – No. 200 Sieve (0.074 mm)
SILT		No. 200 Sieve - 0.002 mm
CLAY		< 0.002 mm

PENETRATION – BLOWS

Number of impacts of a 140-pound hammer falling a distance of 30 inches to cause a standard split-barrel sampler, 1 3/8 inches I.D., to penetrate a distance of 6 inches. The number of impacts for the first 6 inches of penetration is known as the seating drive. The sum of the impacts for the last 12 inches of penetration is the Standard Penetration Test Resistance or "N" value, blows per foot. For example, if blows = 6-8-9, "N" = 8+9 or 17.

OTHER NOTATIONS

Recovery % – length of recovered soil divided by length of sample attempted.

50/2"	Impacts of hammer to cause sampler to penetrate the indicated number of inches
WR	Sampler penetrated under the static loading of the weight of the drill rods
WH	Sampler penetrated under the static loading the weight of the hammer and drill rods
HSA	Hollow stem auger drilling method
FA	Flight auger drilling method
RW	Rotary wash drilling methods with drilling mud
AH	Automatic hammer used for Standard Penetration Test sample
SH	Safety hammer with rope and cathead used for Standard Penetration Test sample

GRAPHIC SYMBOLS


Depth at which groundwater was encountered during drilling


Depth at which groundwater was measured after drilling


Standard Penetration Test Sample, ASTM D1586


3-inch diameter Shelby Tube Sample, ASTM D1587



Sample grabbed from auger


NX Size rock core sample

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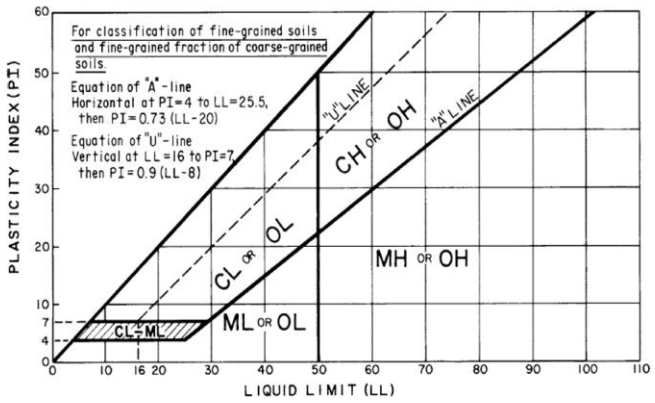
UNIFIED SOIL CLASSIFICATION SYSTEM, (ASTM D-2487)

Major Divisions			*Group Symbols*		*Typical Names*	*Laboratory Classification Criteria*		
Coarse-grained soils (More than half of materials is larger than No. 200 sieve size)	Gravels (More than half of coarse fraction is larger than No. 4 sieve size)	Clean gravels (Little or no fines)	GW		Well-graded gravels, gravel-sand mixtures, little or no fines	Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-Grained soils are classified as follows: Less than 5 per cent GW, GP, SW, SP; More than 12 per cent GM, GC, SM, SC; 5 to 12 per cent Borderline cases requiring dual symbols[b]	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
			GP		Poorly graded gravels, gravel-sand mixtures, little or no fines		Not meeting all gradation requirements for GW	
		Gravels with fines (Appreciable amount of fines)	GM[a]	d	Silty gravels, gravel-sand-silt mixtures		Atterberg limits below "A" line or P.1. less than 4	Above "A" line with P.1. between 4 and 7 are *borderline* cases requiring use of dual symbols
				u				
			GC		Clayey gravels, gravel-sand-clay mixtures		Atterberg limits below "A" line with P.1. greater than 7	
	Sands (More than half of coarse fraction is smaller than No. 4 sieve size)	Clean sands (Little or no fines)	SW		Well-graded sands, gravelly sands, little or no fines		$C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
			SP		Poorly graded sands, gravelly sands, little or no fines		Not meeting all gradation requirements for SW	
		Sands with fines (Appreciable amount of fines)	SM[a]	d	Silty sands, sand-mix mixtures		Atterberg limits about "A" line or P.I. less than 4	Limits plotting in hatched zone with P.I. between 4 and 7 are *borderline* cases requiring use of dual symbols
				u				
			SC		Clayey sands, sand-clay mixtures		Atterberg limits about "A" line with P.I. greater than 7	
Fine-grained soils (More than half of materials is smaller than No. 200 sieve size)	Silts and clays (Liquid limit less than 50)		ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity			
			CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays			
			OL		Organic silts and organic silty clays of low plasticity			
	Silts and clays (Liquid limit greater than 50)		MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts			
			CH		Inorganic clays of medium to high plasticity, organic silts			
			OH		Organic clays of medium to high plasticity, organic silts			
	Highly organic soils		Pt		Peat and other highly organic soils			



[a]Division of GM and SM groups into subdivisions of d and u are for roads and airfields only. Subdivision is based on Atterberg limits; suffix d used when L.L. is 26 or less and the P.1. is 6 or less; the suffix u used when L.L. is greater than 28.

[b]Borderline classifications, used for soils possessing characteristics of two groups, are designated by combinations of group symbols. For example: GW-GC, well-graded gravel-sand mixture with clay binder.

APPENDIX C

Laboratory Test Results
DCP Test Results

PROCTOR TEST

PROJECT NAME:	**KCI Taxiway E**
PROJECT No.:	20212063
SAMPLE NUMBER:	**C-3B**
SAMPLE LOCATION:	**Bulk**
DEPTH:	**0 to 4 ft.**
VISUAL CLASS. (USCS):	**Brown, fat CLAY (CH)**

TYPE OF COMPACTION	**Mod.**	**D1557**		
SIEVE ANALYSIS RESULTS	0.75	0.375	No. 4	**PROCEDURE**
% Retained(cummulative)				**A**

SOIL WEIGHT DATA					
Determination Number	1	2	3	4	5
Weight- Soil + Mold (wet),g	3966.4	3970.5	3931.4	3881.7	
Weight of Mold,g	2017.0	2017.0	2017.0	2017.0	
Weight Wet Soil,g	**1949.4**	**1953.5**	**1914.4**	**1864.7**	
Volume of Mold (ft^3)	**0.0333**	**0.0333**	**0.0333**	**0.0333**	
MOISTURE DATA					
Weight- Soil + Tare (wet),g	389.3	436.8	358.2	401.3	
Weight- Soil + Tare (dry),g	326.2	371.2	311.8	355.0	
Weight- Tare,g	9.1	9.4	8.3	8.2	
COMPUTED DATA					
Wet unit weight (pcf)	**129.1**	**129.3**	**126.7**	**123.5**	
Moisture content (%)	**19.9**	**18.1**	**15.3**	**13.3**	
Dry unit weight (pcf)	**107.6**	**109.5**	**109.9**	**108.9**	

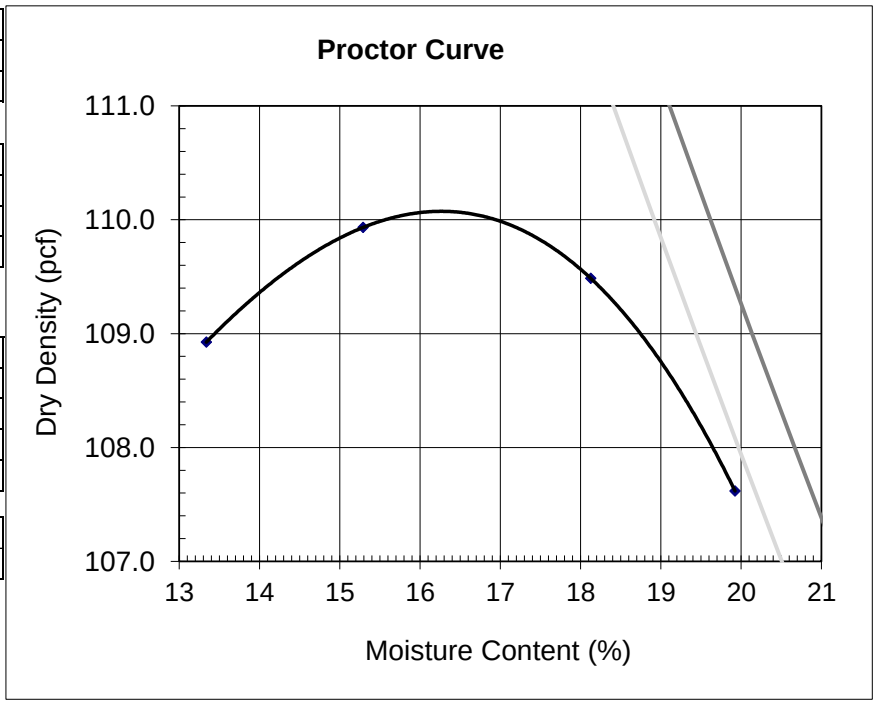
Maximum Dry Density (pcf)	**110.1**
Optimum Moisture Content (%)	**16.3**
Natural Moisture Content (%)*	**23.0**

Liquid Limit	**51**
Plastic Limit	18
Plasticity Index	**33**
CLASSIFICATION. (USCS)*	**CH**

*** with additive**

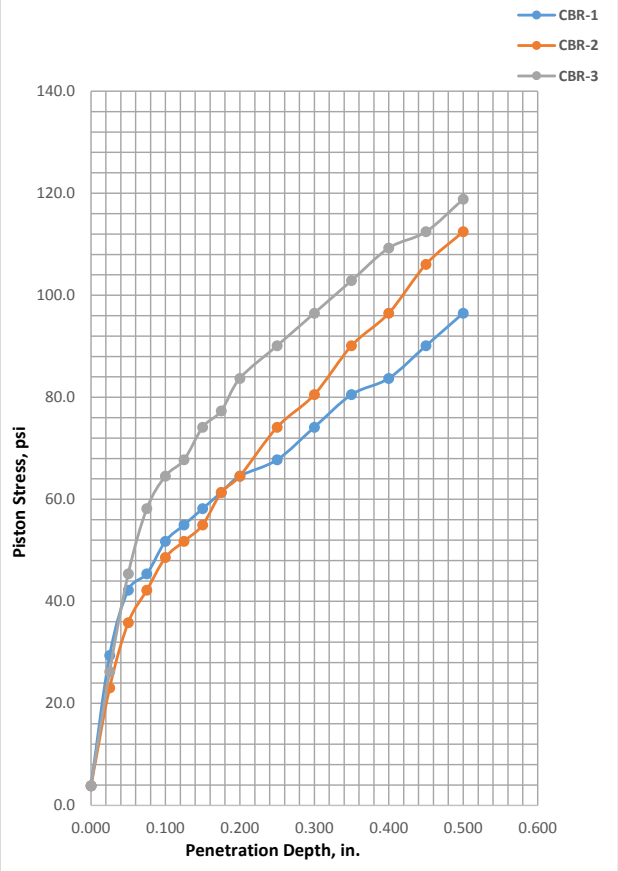
	Date
Tested by: MN	12/10/2021
Calculated by: MN	12/13/2021
Checked by: TBS	1/24/2022
Entered Into Excel by: MN	12/13/2021

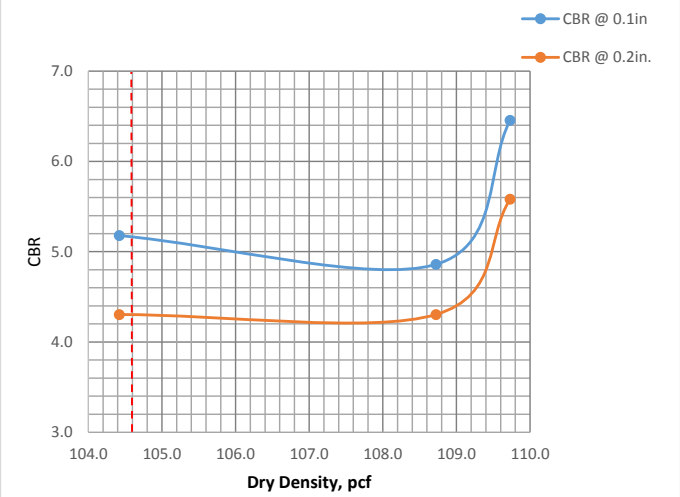
NOTE:

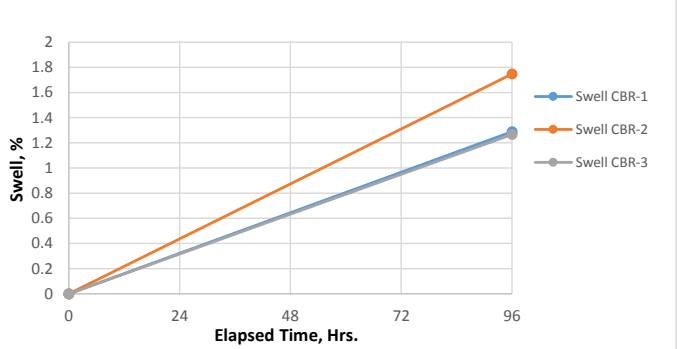


CALIFORNIA BEARING RATIO TEST REPORT
ASTM D 1883-07

% CBR Value @ 95% Compaction = 5.2 @ 0.1 in. penetration
% CBR Value @ 95% Compaction = 4.3 @ 0.2 in. penetration







Specimen ID	Molded			CBR%		Moisture of Top 1" Layer, %	Surcharge lbs	Max Swell, %
	Density, pcf	Percent of Max. Density	Moisture	0.1 in.	0.2 in			
CBR-1	104.4	94.8	18.0	5.2	4.3	23.3	10	1.3
CBR-2	108.7	98.7	17.7	4.9	4.3	22.7	10	1.7
CBR-3	109.7	99.7	17.9	6.5	5.6	21.8	10	1.3

Material Description	USCS	MAX DENSITY, pcf	OPTIMUM MOISTURE, %	LL	PI
Brown, fat CLAY (CH)	CH	110.1	16.3	51	33

Remarks:

Compaction Method: ASTM D1557

Project: KCI Airport Taxiway E

Location: Kansas City, MO

Client: HNTB

Sample No.: C-3B

Boring: Bulk | **Project No.: 20212063**

Depth: 0 to 4 ft. | **Date: 1/24/2022**

TSI geotechnical, inc.

8248 NW 101st
Terrace #5
Kansas City,
Missouri 64153
p| 816.599.7965
f| 816.599.7967

PROCTOR TEST

PROJECT NAME:	**KCI Taxiway E**
PROJECT No.:	20212063
SAMPLE NUMBER:	**C-8B**
SAMPLE LOCATION:	**Bulk**
DEPTH:	**0 to 4 ft.**
VISUAL CLASS. (USCS):	**Brown, lean CLAY (CL)**

TYPE OF COMPACTION	**Mod.**	**D1557**		
SIEVE ANALYSIS RESULTS	0.75	0.375	No. 4	**PROCEDURE**
% Retained(cummulative)				**A**

SOIL WEIGHT DATA					
Determination Number	1	2	3	4	5
Weight- Soil + Mold (wet),g	3933.7	3979.2	3972.6	3875.6	
Weight of Mold,g	2017.0	2017.0	2017.0	2017.0	
Weight Wet Soil,g	**1916.7**	**1962.2**	**1955.6**	**1858.6**	
Volume of Mold (ft^3)	**0.0333**	**0.0333**	**0.0333**	**0.0333**	
MOISTURE DATA					
Weight- Soil + Tare (wet),g	406.5	370.4	388.1	408.6	
Weight- Soil + Tare (dry),g	336.6	313.6	336.0	360.0	
Weight- Tare,g	9.1	10.0	8.4	8.4	
COMPUTED DATA					
Wet unit weight (pcf)	**126.9**	**129.9**	**129.5**	**123.0**	
Moisture content (%)	**21.4**	**18.7**	**15.9**	**13.8**	
Dry unit weight (pcf)	**104.6**	**109.4**	**111.7**	**108.1**	

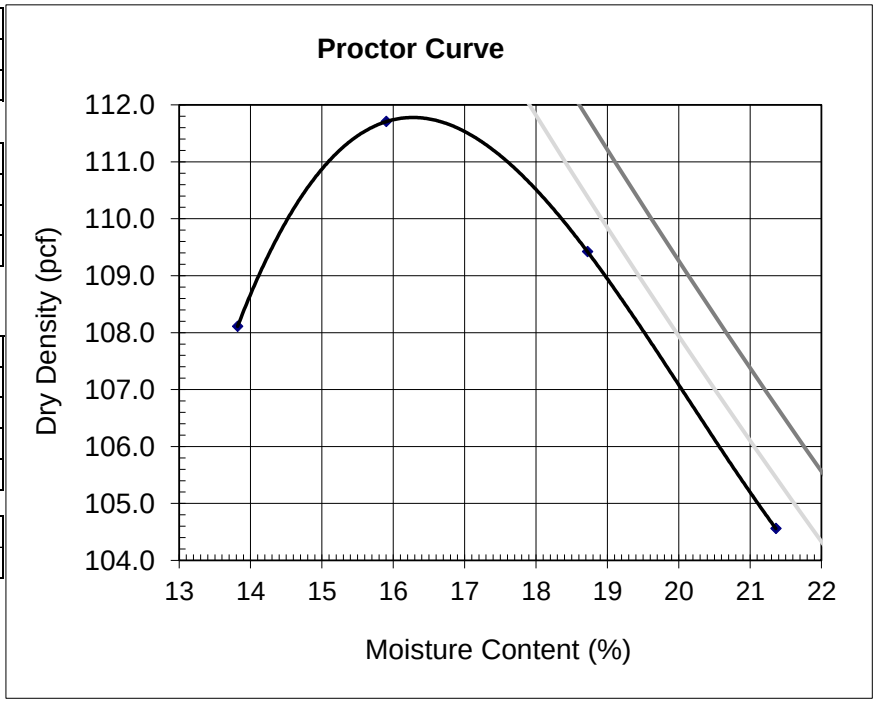
Maximum Dry Density (pcf)	**111.7**
Optimum Moisture Content (%)	**16.3**
Natural Moisture Content (%)*	**21.4**

Liquid Limit	**44**
Plastic Limit	18
Plasticity Index	**26**
CLASSIFICATION. (USCS)*	**CL**

*** with additive**

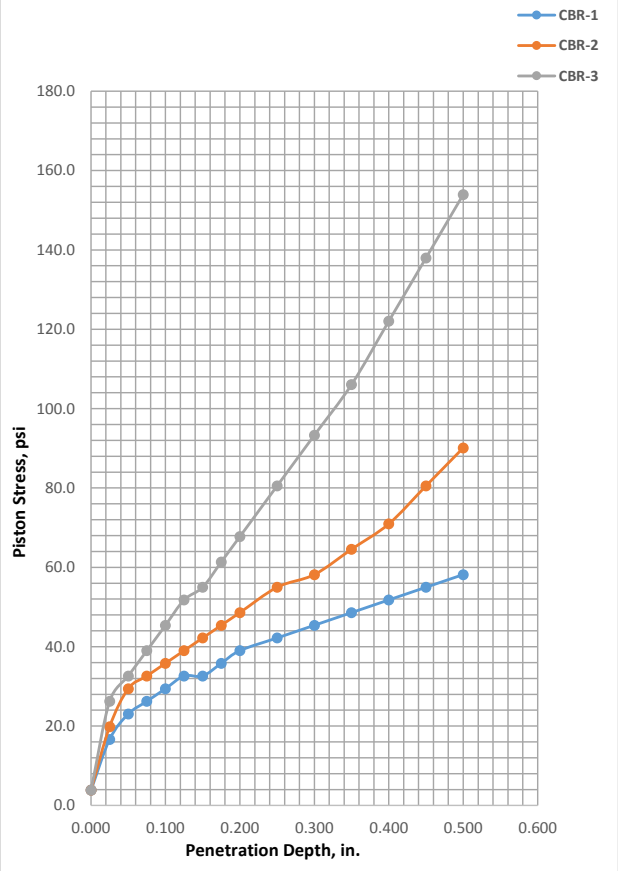
	Date
Tested by: MN	12/8/2021
Calculated by: MN	12/9/2021
Checked by: TBS	1/25/2022
Entered Into Excel by: MN	12/9/2021

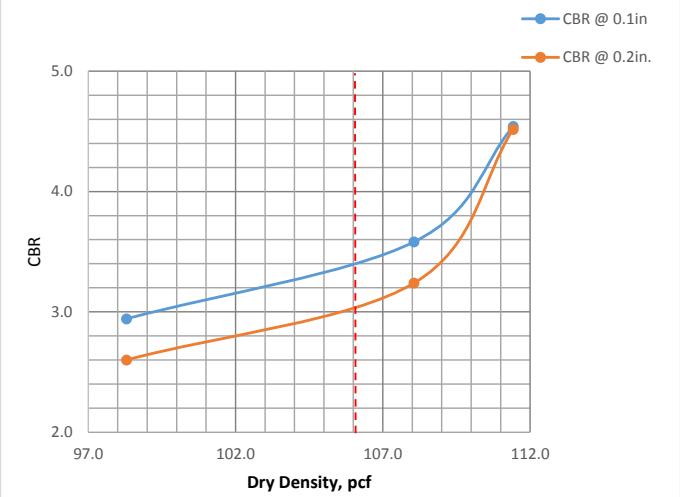
NOTE:

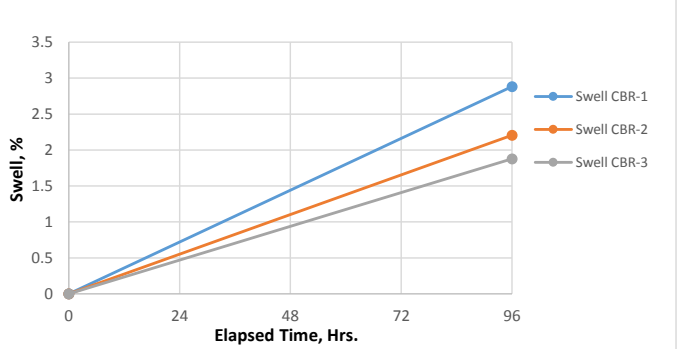


CALIFORNIA BEARING RATIO TEST REPORT
ASTM D 1883-07

% CBR Value @ 95% Compaction = 3.4 @ 0.1 in. penetration
% CBR Value @ 95% Compaction = 3.0 @ 0.2 in. penetration







Specimen ID	Molded			CBR%		Moisture of Top 1" Layer, %	Surcharge lbs	Max Swell, %
	Density, pcf	Percent of Max. Density	Moisture	0.1 in.	0.2 in			
CBR-1	98.3	88.0	16.4	2.9	2.6	25.5	10	2.9
CBR-2	108.1	96.7	16.5	3.6	3.2	22.3	10	2.2
CBR-3	111.4	99.8	16.6	4.5	4.5	21.5	10	1.9

Material Description	USCS	MAX DENSITY, pcf	OPTIMUM MOISTURE, %	LL	PI
Brown, lean CLAY (CL)	CL	111.7	16.3	44	26

Remarks:

Compaction Method: ASTM D1557

Project: KCI Airport Taxiway E

TSI geotechnical, inc.

8248 NW 101st
Terrace #5
Kansas City,
Missouri 64153
p| 816.599.7965
f| 816.599.7967

Location: Kansas City, MO

Client: HNTB

Sample No.: C-8B

Boring: Bulk | **Project No.: 20212063**

Depth: 0 to 4 ft. | **Date: 1/24/2022**

PROCTOR TEST

PROJECT NAME:	**KCI Taxiway E**
PROJECT No.:	20212063
SAMPLE NUMBER:	**C-13B**
SAMPLE LOCATION:	**Bulk**
DEPTH:	**0 to 4 ft.**
VISUAL CLASS. (USCS):	**Brown and gray, lean CLAY (CL)**

TYPE OF COMPACTION	**Mod.**	**D1557**		
SIEVE ANALYSIS RESULTS	0.75	0.375	No. 4	**PROCEDURE**
% Retained(cummulative)				**A**

SOIL WEIGHT DATA					
Determination Number	1	2	3	4	5
Weight- Soil + Mold (wet),g	3963.0	4004.9	3988.6	3815.4	
Weight of Mold,g	2017.0	2017.0	2017.0	2017.0	
Weight Wet Soil,g	**1946.0**	**1987.9**	**1971.6**	**1798.4**	
Volume of Mold (ft^3)	**0.0333**	**0.0333**	**0.0333**	**0.0333**	
MOISTURE DATA					
Weight- Soil + Tare (wet),g	415.4	405.7	428.3	412.7	
Weight- Soil + Tare (dry),g	347.4	346.6	376.6	369.1	
Weight- Tare,g	9.2	9.2	9.2	9.2	
COMPUTED DATA					
Wet unit weight (pcf)	**128.8**	**131.6**	**130.5**	**119.1**	
Moisture content (%)	**20.1**	**17.5**	**14.1**	**12.1**	
Dry unit weight (pcf)	**107.3**	**112.0**	**114.4**	**106.2**	

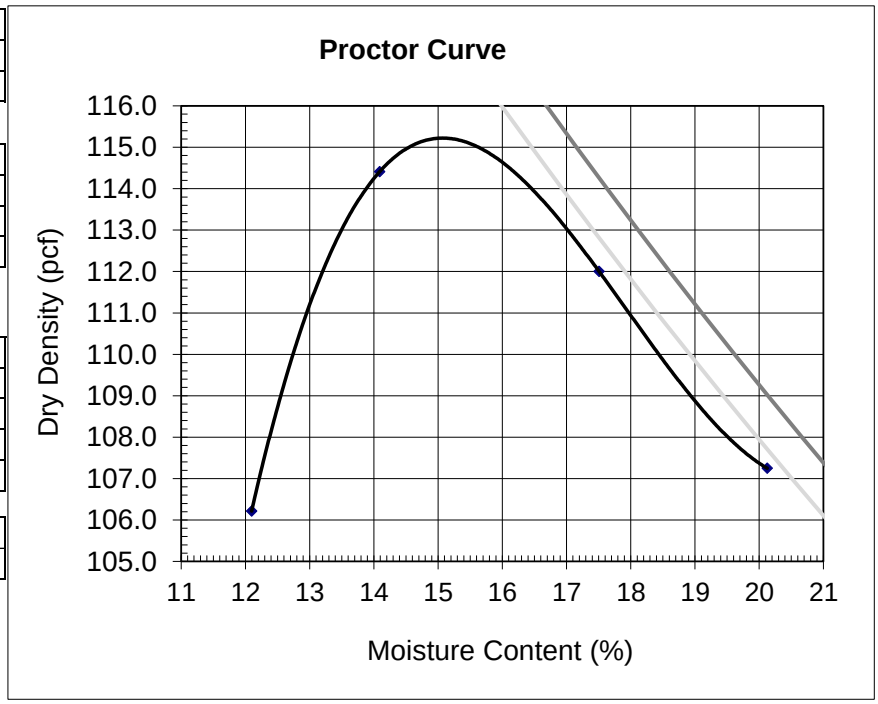
Maximum Dry Density (pcf)	**115.3**
Optimum Moisture Content (%)	**15.1**
Natural Moisture Content (%)*	**20.1**

Liquid Limit	**45**
Plastic Limit	18
Plasticity Index	**27**
CLASSIFICATION. (USCS)*	**CL**

*** with additive**

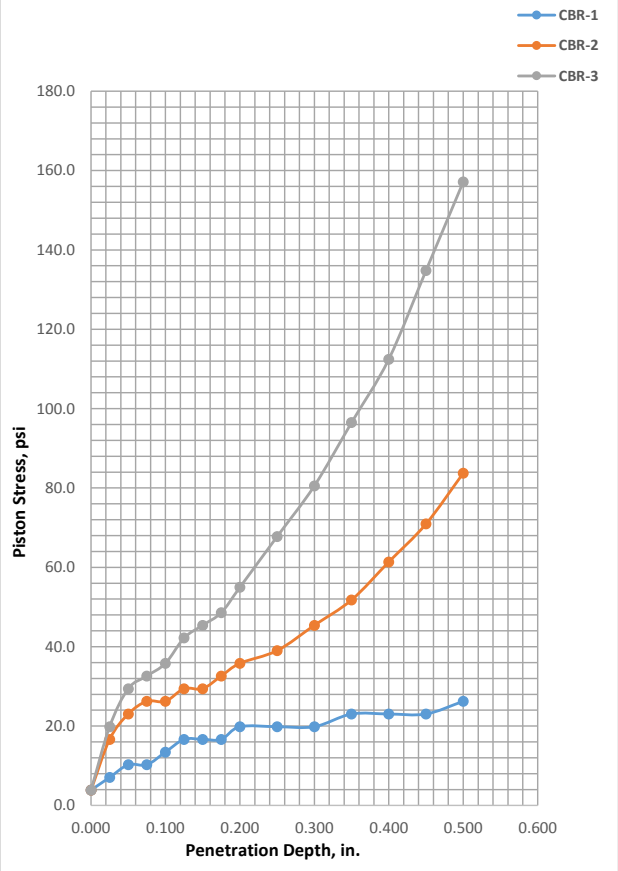
	Date
Tested by: MN	12/8/2021
Calculated by: MN	12/9/2021
Checked by: TBS	1/24/2022
Entered Into Excel by: MN	12/9/2021

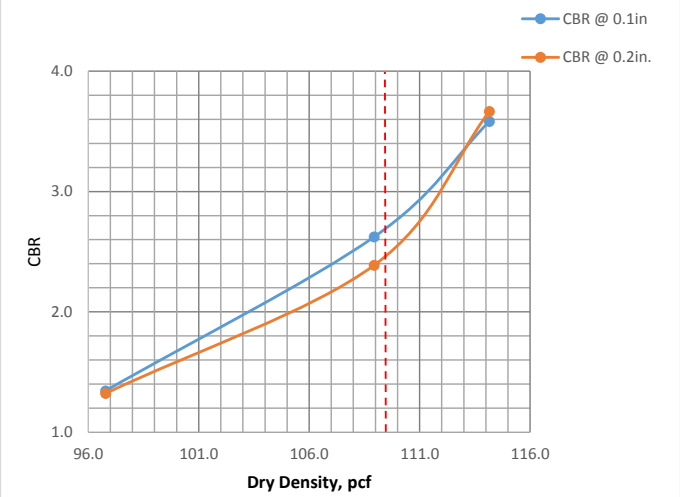
NOTE:

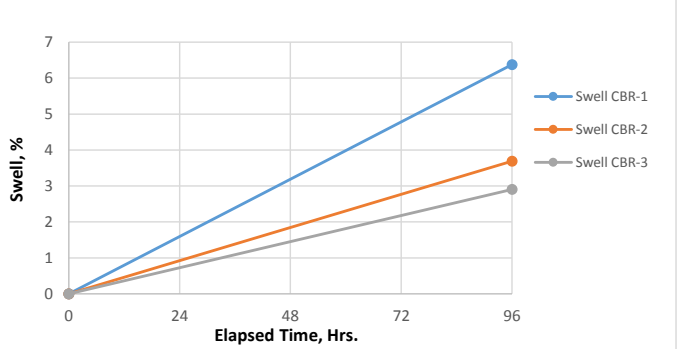


CALIFORNIA BEARING RATIO TEST REPORT
ASTM D 1883-07

% CBR Value @ 95% Compaction = 2.7 @ 0.1 in. penetration
% CBR Value @ 95% Compaction = 2.5 @ 0.2 in. penetration







	Molded				CBR%		Moisture of Top 1" Layer, %	Surcharge lbs	Max Swell, %
Specimen ID	Density, pcf	Percent of Max. Density	Moisture		0.1 in.	0.2 in			
CBR-1	96.8	83.9	15.1		1.3	1.3	29.8	10	6.4
CBR-2	108.9	94.5	15.0		2.6	2.4	22.9	10	3.7
CBR-3	114.2	99.0	15.0		3.6	3.7	21.6	10	2.9

Material Description	USCS	MAX DENSITY, pcf	OPTIMUM MOISTURE, %	LL	PI
Brown and gray, lean CLAY (CL)	CL	115.3	15.1	45	27

Remarks:

Compaction Method: ASTM D1557

Project: KCI Airport Taxiway E

Location: Kansas City, MO

Client: HNTB

Sample No.: C-13B

Boring: Bulk | **Project No.: 20212063**

Depth: 0 to 4 ft. | **Date: 1/24/2022**

TSI geotechnical, inc.

8248 NW 101st
Terrace #5
Kansas City,
Missouri 64153
p| 816.599.7965
f| 816.599.7967

TSi Geotechnical Inc.
8248 NW 101st Terrace, #5
Kansas City, MO 64153

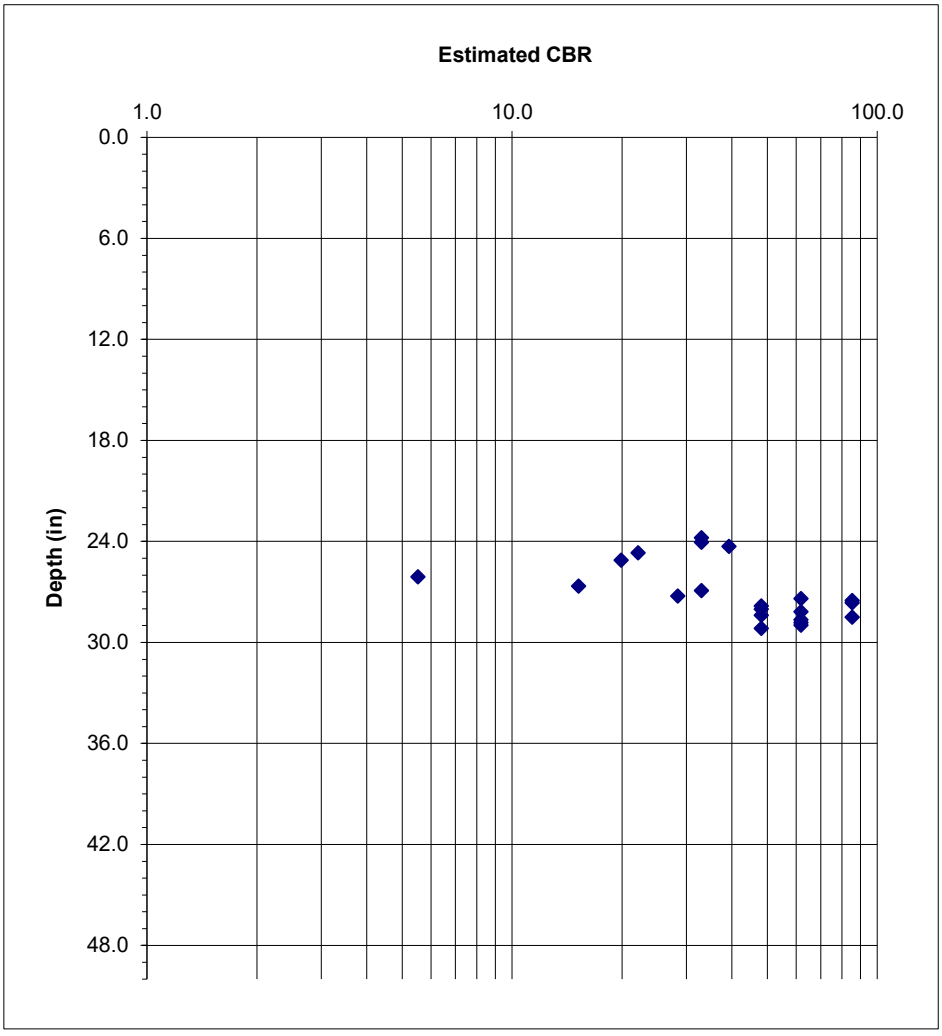
DCP Test Data

Project Name: KCI Airport Taxiway E
Project Number: 20212063
Location: Kansas City, MO
Date: 02-12-21
Technician: AB/CK

TEST RESULTS

Boring
C-6

Pavement Thickness	23.5
Blow Count	**Reading (mm)**
Start	94
1	101
2	108
3	114
4	124
5	135
6	160
7	174
8	181
9	189
10	193
11	196
12	199
13	204
14	209
15	213
16	218
17	221
18	225
19	229
20	233
21	238
22	247
23	259
24	263
25	275



TSi Geotechnical Inc.
8248 NW 101st Terrace, #5
Kansas City, MO 64153

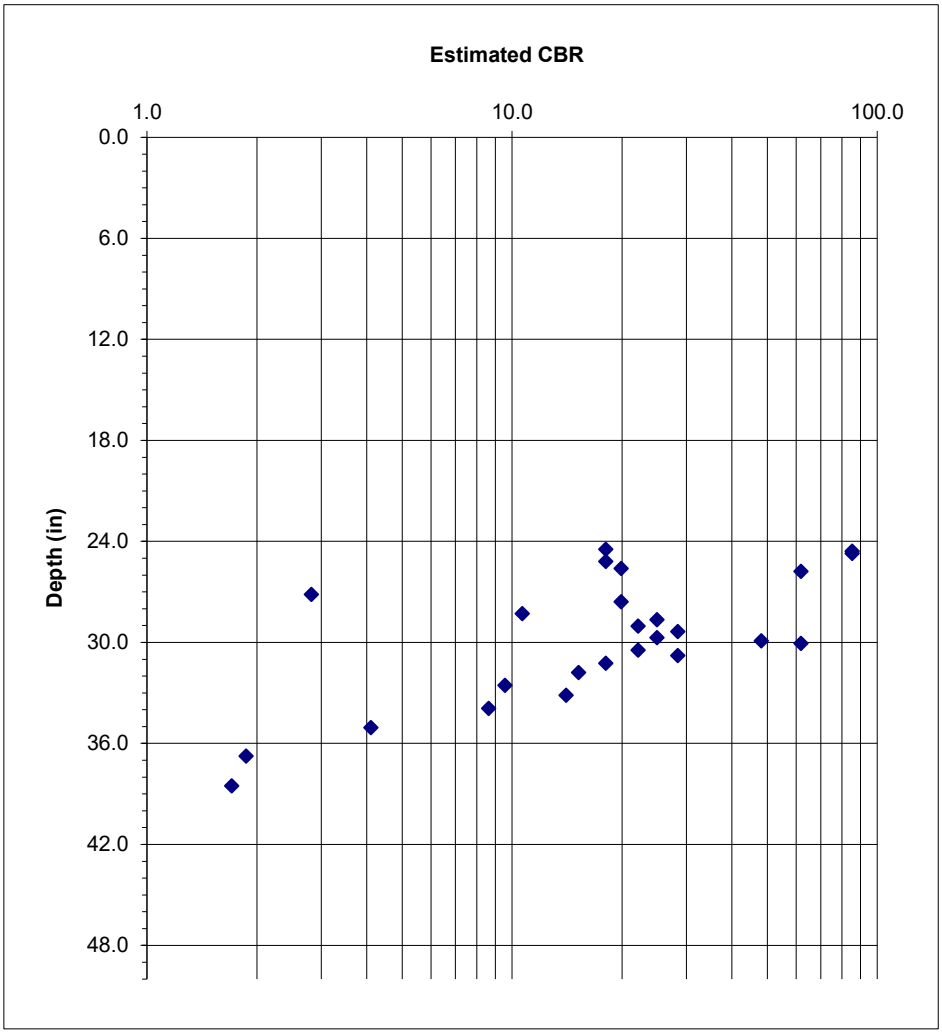
DCP Test Data

Project Name: KCI Airport Taxiway E
Project Number: 20212063
Location: Kansas City, MO
Date: 02-12-21
Technician: AB/CK

TEST RESULTS

Boring
C-11

Pavement Thickness	24.0
Blow count	**Reading (mm)**
Start	111
1	123
2	126
3	129
4	141
5	152
6	156
7	191
8	202
9	220
10	229
11	239
12	247
13	256
14	261
15	265
16	275
17	283
18	295
19	309
20	328
21	343
22	363
23	392
24	435
25	480



APPENDIX D

Pavement Core Photographs
Pavement Surface Photographs

C-1 **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**24.5**	Unbonded at 17.75”

C-2 **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**24.5**	Unbonded at 17.0”

C-3B **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**24.5**	Unbonded at 17.25”

C-4 **KCI Taxiway E** **20212063**



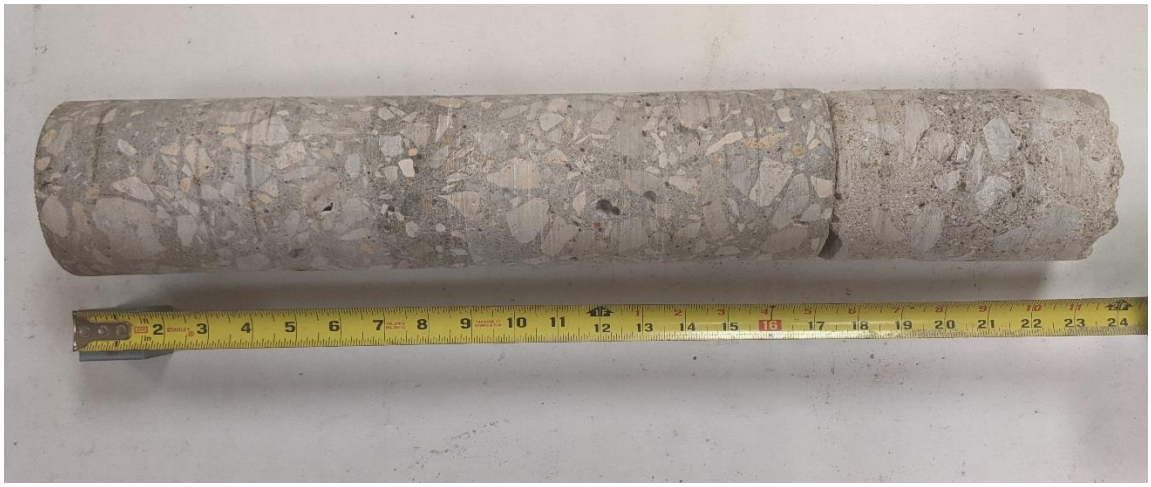
Material	Thickness (in)	Notes
Concrete	**24.0**	Unbonded at 18.0”

C-5 B **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**24.5**	Unbonded at 17.0”

C-6 **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**23.5**	Unbonded at 17.0”

C-7 **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**24.75**	Unbonded at 18.0”

C-8B **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**24.75**	Unbonded at 17.5”

C-9 **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**23.5**	Unbonded at 16.5”

C-10B **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**23**	Unbonded at 16.5”

C-11 **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**24.0**	Unbonded at 17.5”

C-12 **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**25.0**	Unbonded at 17.25”

C-13B **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**25.25**	Unbonded at 17.5

C-14 **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**24.25**	Unbonded at 17.25”

C-15B **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**23.5**	Unbonded at 16.25”

C-16 **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Asphalt	**8.25**	

C-17 **KCI Taxiway E** **20212063**



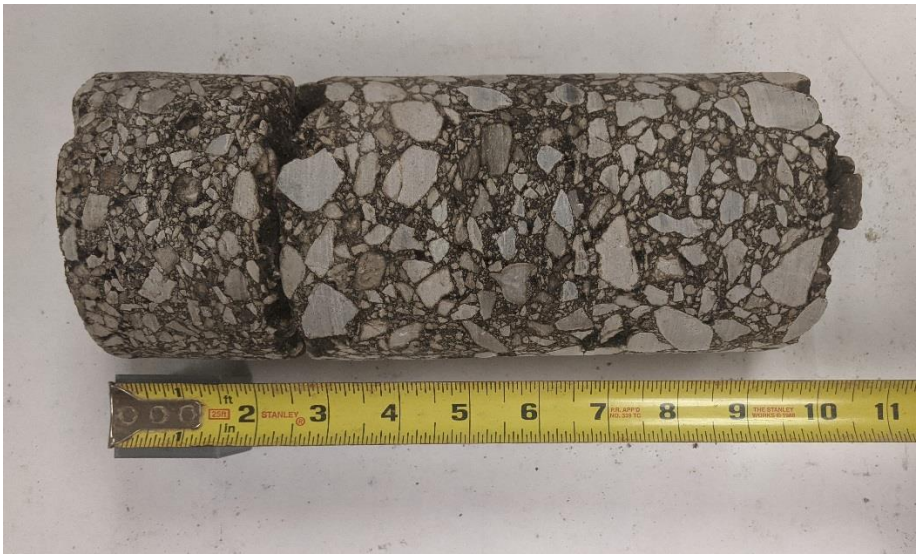
Material	Thickness (in)	Notes
Asphalt	**7.75**	Material Fragmented due to level of weathering

C-18 **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Asphalt	**9.5**	Unbonded at 5.5”

C-19 **KCI Taxiway E** **20212063**



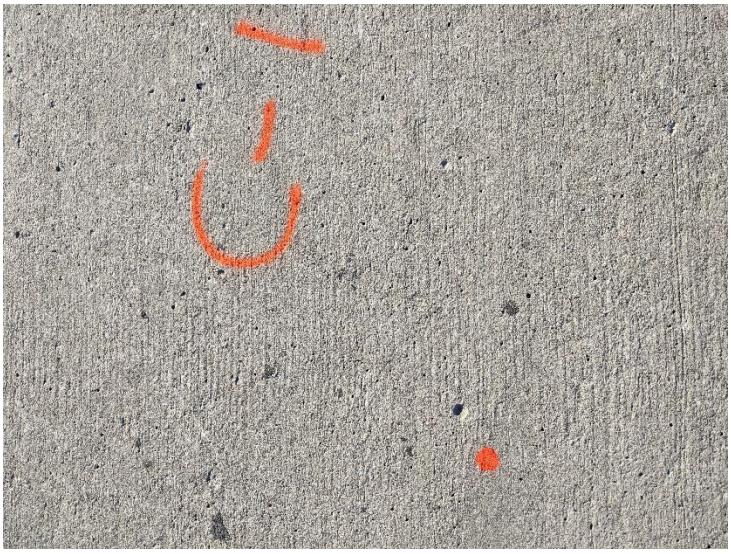
Material	Thickness (in)	Notes
Asphalt	**10.25**	Unbonded at 2.5

C-20 **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Asphalt	**8.75**	

C-1 **KCI Taxiway E** **20212063**



C-2 **KCI Taxiway E** **20212063**



C-3B **KCI Taxiway E** **20212063**



C-4 **KCI Taxiway E** **20212063**



C-5 B **KCI Taxiway E** **20212063**



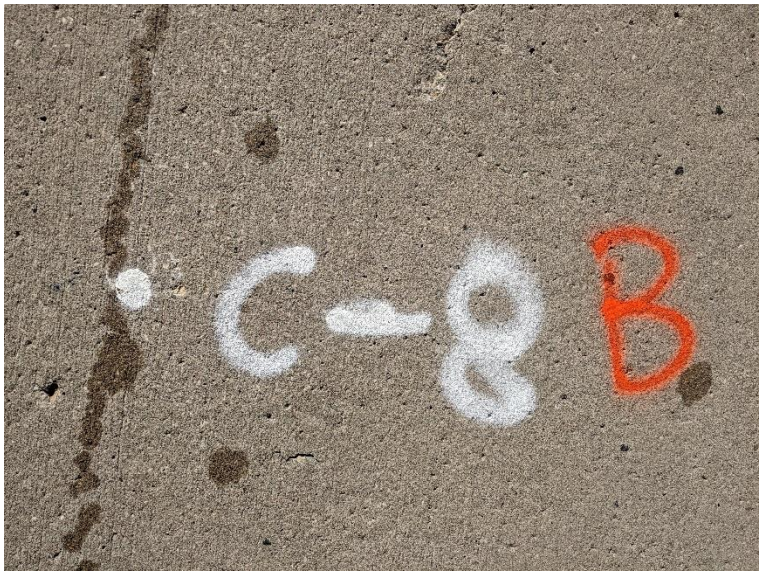
C-6 **KCI Taxiway E** **20212063**



C-7 **KCI Taxiway E** **20212063**



C-8B **KCI Taxiway E** **20212063**



C-9 **KCI Taxiway E** **20212063**



C-10B **KCI Taxiway E** **20212063**



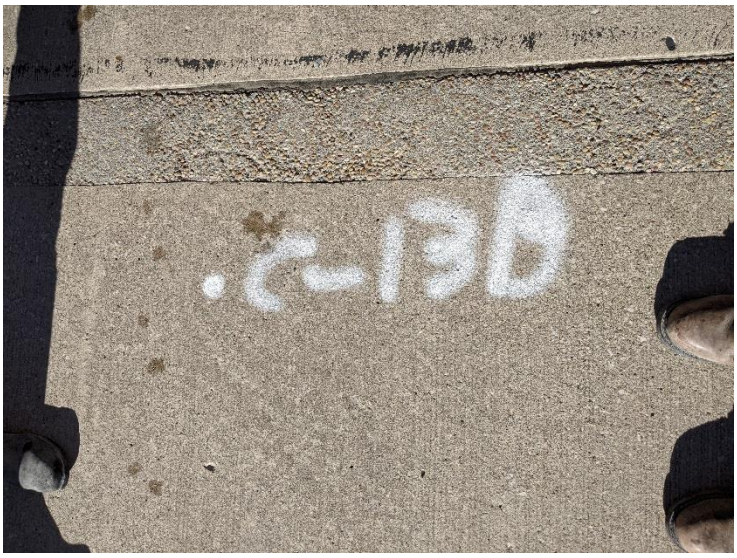
C-11 **KCI Taxiway E** **20212063**



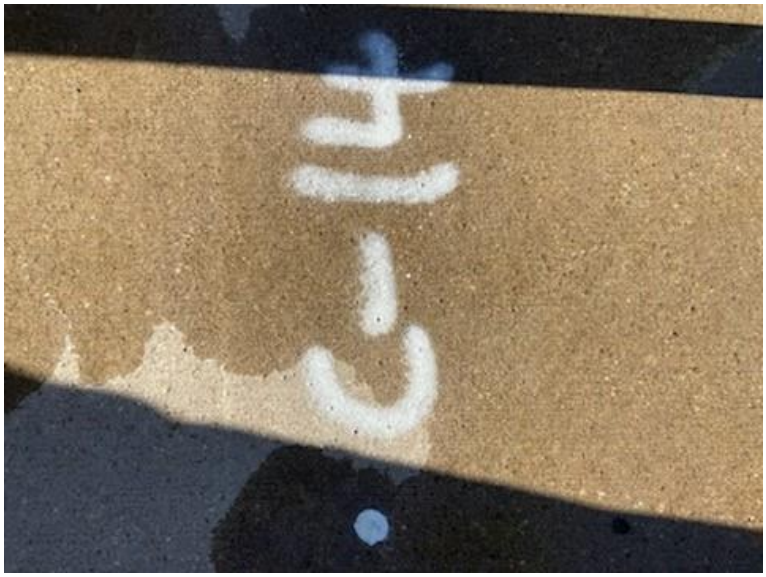
C-12 **KCI Taxiway E** **20212063**



C-13B **KCI Taxiway E** **20212063**



C-14 **KCI Taxiway E** **20212063**



C-15B **KCI Taxiway E** **20212063**



C-16 **KCI Taxiway E** **20212063**



C-17 **KCI Taxiway E** **20212063**



C-18 **KCI Taxiway E** **20212063**



C-19 **KCI Taxiway E** **20212063**



C-20 **KCI Taxiway E** **20212063**



CONSTRUCTION SAFETY AND PHASING PLAN (CSPP)

TAXIWAY E AND TAXIWAY J REHABILITATION

Kansas City International Airport (MCI)

FINAL

FEBRUARY 9TH, 2023

KCAD Project No. 62230566
AIP No. 3-29-0040-090 & 091

PREPARED FOR –
Kansas City International Airport (MCI)

Kansas City Department of Aviation (KCAD)
601 Brasilia Avenue
Kansas City, MO 64153

PREPARED BY – HNTB Corporation

HNTB Corporation
715 Kirk Drive
Kansas City, MO 64105

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Appendices

APPENDIX A Project Safety and Phasing Plan Sheets

APPENDIX B FAA Guide to Ground Vehicle Operations

Aviation safety is the primary consideration at airports, especially during construction. This Construction Safety and Phasing Plan (CSPP) will serve as a companion document to the project plans and specifications for the Taxiway E and Taxiway J Rehabilitation Project and has been written in compliance with FAA AC 150-5370-2G; Operational Safety on Airports During Construction. The phasing developed for this project is intended to mitigate disruption to aircraft operations during construction while providing a logical sequence of construction activities. The subsequent sections of this document will address scheduling, coordination, and airfield safety precautions as they relate to the Taxiway E and Taxiway J Rehabilitation Project.

Written approval of this CSPP must be received, from the FAA project manager, prior to the project advertisement. This CSPP is a document that will evolve throughout the project and may be amended through the addition of FAA approved supplements and attachments. Changes will not be made to the CSPP, without their review and approval by the FAA project manager.

1) Coordination

a) Project Contacts. Below is a comprehensive list of parties involved during design of the Taxiway E and Rehabilitation Project.

Table 1 Design Contacts

Organization	Role	Point of Contact	Contact Information
HNTB Corporation	Consultant (Airfield Design)	Lynette Mellett, P.E.	(913) 488-1079
		Matt Walsh, P.E.	(312) 798-0253
TREKK Design Group, LLC	Consultant (Topographic Survey)	Travis Biddinger, PLS	(816) 877-8675
Custom Engineering, Inc.	Consultant (Airfield Electrical Design)	Walter May, P.E.	(314) 802-0920
TSi Geotechnical, Inc.	Consultant (Geotechnical Exploration)	Shannon Stafford	(816) 599-7965
Applied Pavement Technology, Inc.	Consultant (Airfield Pavement Design)	Gen Long, P.E.	(217) 398-3977
City of Kansas City Aviation Department	Sponsor Project Manager	Mallie Hare	(816) 243-3037
Federal Aviation Administration	ADO Manager	Ed Hyatt	(816) 329-2605
Federal Aviation Administration	FAA Project Manager	Anthony Pollard	(816) 329-2619
Federal Aviation Administration	FAA ATO Tech Ops	Jase Jones	(816) 329-2780

b) Design Submittals. Throughout design, coordination between HNTB Corporation (HNTB), the Kansas City Aviation Department (Sponsor), and the Federal Aviation Administration (FAA) was required. The project Design Report was reviewed by the Sponsor and FAA at 60%. Reviews of the project documents will again be performed at the 90% and Issued for Bid (IFB) design submittal. Below is a summary of the project schedule to date.

Table 2 Project Schedule

Submittal	Date
60% Submittal	12/2/2022
90% Submittal	1/20/2022
Issued For Bid	2/9/2023
Pre-Bid Meeting	TBD
Bid Opening	3/17/2023
Pre-Construction Meeting	TBD
Notice to Proceed	6/5/2023

c) Pre-Bid Meeting (TBD). A pre-bid conference will be held at Kansas City International (MCI) at least 10 days prior to the bid opening in order to provide contractors and material suppliers the opportunity to ask project specific questions. Below is a general outline of topics that will be discussed at the meeting.

(1) Project Overview

(a) Phasing and Runway Closures

(b) Operational Considerations

(2) Proposal Requirements

(a) DBE Requirements

(3) Safety Plan Compliance Document (SPCD)

(4) Site tour

d) Preconstruction Meeting (TBD). After the bid opening and selection of a contractor, a pre-construction conference will be scheduled in order to discuss operational safety, phasing, testing, quality control/quality acceptance, labor requirements, environmental factors, and potential issues that could arise during construction. The meeting will be scheduled within 10 days of the notice to proceed. Below is a general outline of topics that will be discussed at the meeting.

(1) Project Overview and Safety Items

(2) Construction Items

(a) Phasing and Runway Closures

(b) Operational Considerations

(3) Labor Requirements

(4) Civil Rights Requirements

(5) Environmental Requirements

e) Contractor Progress Meetings. In addition to the pre-construction conference, operational safety will be a standing agenda item, which shall be addressed at each Contractor progress meeting. These meetings will also address weekly construction issues, administrative issues such as change orders and/or pay estimates, and any coordination required with the FAA ATO and or the Sponsor in relation to opening/closing sections of pavement, issuing notice to airmen (NOTAMs), or impacting navigational aids (NAVAIDs) in each phase as construction progresses. Below is a draft list of parties that will be involved during construction. The list will be updated after the contract is awarded to include all necessary contact information.

Table 3 Construction, Emergency and Utility Contacts

Organization	Role	Point of Contact	Contact Information
CONSTRUCTION			
HNTB Corporation	Consultant (Resident Engineer)	Brian Johnson, P.E	(563) 200-2106
Custom Engineering. Inc.	Consultant (Airfield Electrical Design)	Walter May, P.E.	(314) 802-0920
TSi Geotechnical, Inc.	Consultant (Material Testing)	Shannon Stafford	(816) 599-7965
City of Kansas City Aviation Department	Sponsor (Project Manager)	Mallie Hare	(816) 243-3037
	MCI Airport Operations/Manager	Bob Johnson	(816) 243-5248
	MCI Airport Security Manager	Alex Gichuiri	(816) 243-3167
	MCI Airport Maintenance	TBD	TBD
	MCI Airport Electrical	Major Davis	(816) 243-7388
Federal Aviation Administration	ADO Manager	Ed Hyatt	(816) 329-2605
	FAA Project Manager	Anthony Pollard	(816) 329-2619
	FAA ATCT Manager	Ryan Grampp	(816) 329-2701
	FAA ATO Tech Ops	Jase Jones	(816) 329-2780
Contractor (TBD)	Contractor Project Manager	TBD	TBD
	Contractor Superintendent	TBD	TBD
	Contractor Safety Manager	TBD	TBD

Organization	Role	Point of Contact	Contact Information
Subcontractor (TBD)	Subcontractor Contact	TBD	TBD
Contractor QC Testing Firm (TBD)	Quality Control Testing	TBD	TBD
EMERGENCY			
St. Luke's Northland Hospital	Medical		(816) 880-6040
KCI Airport Fire Department	Fire Fighting/ARFF		(816) 243-4000
KCI Airport Police	Police		(816) 243-4000
UTILITY			
Federal Aviation Administration	Utilities & Facilities (Includes Locates)		(816) 329-2780
MCI Airport Electrical	Utility-Airfield Lighting	Major Davis	(816) 243-7388
Missouri One Call	Utility Locate		(800) 344-7483
Evergy	Utility-Electric Power		
KCMO Water Department	Utility-Water		

2) Phasing

Project Overview. The Taxiway E and Taxiway J Rehabilitation Project is a single bid package, which covers all three phases of the project. The work associated with the project includes the following elements:

- Rehabilitation of the top surface pavement of Taxiway E
- Rehabilitation of the top surface pavement of Taxiway J between Taxiway C and D
- Rehabilitation of the shoulder pavement of Taxiway E and Taxiway J
- Airfield lighting replacement and improvements for existing centerline and edge light fixtures.

Table 4 Work Area Activities

Work Area	Work Activities	Duration (Calendar Days)
A	• Surface PCC Rehabilitation: Taxiway E between Taxiway D and Taxiway E2 • Surface PCC Rehabilitation: Taxiway E shoulders • Airfield Lighting Installation • Pavement Marking	110
B	• Top Layer PCC Rehabilitation: Taxiway E between Taxiway E7 and Runway 9-27 RSA • Surface PCC Rehabilitation: Taxiway E shoulders • Airfield Lighting Installation • Pavement Marking	89
C	• Top Layer PCC Rehabilitation: Taxiway J between Taxiway C and Taxiway D • Asphalt Mill and Overlay: Taxiway J shoulders • Airfield Lighting Installation • Pavement Marking	45

Figure 1 Phasing Durations

	CONSTRUCTION DURATION DAYS	CALENDAR YEAR 2023					
		JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER
		PHASE 1		PHASE 2		PHASE 3	
WORK AREA A	110						
WORK AREA B	89						
WORK AREA C	45						

Phase 1. This phase consists of the rehabilitation of the north half of Taxiway E, between Taxiway D and E2, including adjacent shoulder pavement. The north half of the taxiway is bounded to the north and west by the Rehabilitate Taxiway F Project (2018) and to the south and east by the Rehabilitate RWY 1R-19L Project (2014). The associated closures include the connector taxiways from Runway 1R-19L to Taxiway F for the phase duration.

Phase 1 may begin following the Notice to Proceed (NTP). Phase 1 is anticipated to start in the late Spring of 2023. Phase 1 work consists only of Work Area A.

Phase 1

Construction Activities

- Place barricades and closure markings
- Remove pavement markings temporarily
- Cover/disconnect/jumper/remove airfield lighting/signage temporarily
- Demo taxiway surface pavement
- Demo taxiway shoulder surface pavement
- Construct taxiway surface pavement
- Construct taxiway shoulder surface pavement
- Airfield lighting improvements
- Install temporary/ permanent pavement marking

Areas to be Closed to Aircraft Operations - During Phase 1, the following areas will be closed to aircraft operations:

- Work Area A
  - Taxiway E (between Taxiway D and E2)
  - Taxiway E3, E4, E5, K (between Runway 1R-19L and Taxiway F)

Duration of Closures - The total duration of Phase 1 is 66 Calendar Days.

Construction Access and Haul Routes – The contractor shall access the staging area and site via Mexico City Avenue and Paris Street. A temporary haul road and AOA access gate will be required from the staging area. The contractor may utilize the Airport Perimeter Road to access the Phase 1 work area. A flagger will be required for traffic crossing Taxiway F. Alternate access routes to the staging area and site shall require approval by the KCAD.

Taxi Routes – During Phase 1 construction, Taxiway F will remain open to air traffic. Taxiway F will be restricted to ADG IV aircraft only. Runway 1R-19L will remain operational for both north and south flow operations. Aircraft landing on 1R will be required to exit at Taxiway D or Taxiway E2. All other taxi routes along the dual parallels will remain unchanged from normal routes.

Phase 2. This phase consists of the rehabilitation of the south half of Taxiway E, between Taxiway E7 and the Runway 9-27 runway safety area (RSA), and the north half of Taxiway E, between Taxiway D and E2, including adjacent shoulder pavement. The south half of the taxiway is bounded to the north and east by the Rehabilitate RWY 1R-19L Project (2014) and to the south and west by the Rehabilitate Taxiway F Project (2018). The north half of the taxiway is bounded to the north and west by the Rehabilitate Taxiway F Project (2018) and to the south and east by the Rehabilitate RWY 1R-19L Project (2014). The associated closures include the connector taxiways from Runway 1R-19L to Taxiway F for the phase duration.

Phase 2 may begin following the completion of Phase 1. Phase 2 work consists of Work Area A and B.

Following the completion of Phase 2, the north half of Taxiway E would reopen. After the taxiway is reopened, the KCAD cannot deice/ treat the runway pavement with chemicals during winter operations in accordance with FAA PCC specification requirements.

Phase 2

Construction Activities

- Place barricades and closure markings
- Remove pavement markings temporarily
- Cover/disconnect/jumper/remove airfield lighting/signage temporarily
- Demo taxiway surface pavement
- Demo taxiway shoulder surface pavement
- Construct taxiway surface pavement
- Construct taxiway shoulder surface pavement
- Airfield lighting improvements
- Install temporary/ permanent pavement marking

Areas to be Closed to Aircraft Operations - During Phase 2, the following areas will be closed to aircraft operations:

- Work Area A
  - Taxiway E (between Taxiway D and E2)
  - Taxiway E3, E4, E5, K (between Runway 1R-19L and Taxiway F)
- Work Area B
  - Taxiway E (between Runway 9-27 RSA and Taxiway E7)
  - Taxiway E6 (between Runway 1R-19L and Taxiway F)

Duration of Closures - The total duration of Phase 2 is 44 Calendar Days.

Construction Access and Haul Routes – The contractor shall access the staging area and site via Mexico City Avenue and Paris Street. A temporary haul road and AOA access gate will be required from the staging area. The contractor may utilize the Airport Perimeter Road to access the Phase 2 work area. An additional temporary haul route shall be required from the Airport Perimeter Road to Taxiway F at Taxiway E6 for Work Area B. A flagger will be required for traffic crossing Taxiway F for Work Area A and B. Alternate access routes to the staging area and site shall require approval by the KCAD.

Taxi Routes – During Phase 2 construction, Taxiway F will remain open to air traffic. Taxiway F will be restricted to ADG IV aircraft only north of Taxiway D. Runway 1R-19L will remain operational for both north and south flow operations. While Work Area A and B occur

concurrently, aircraft landing on Runway 1R will be required to exit at Taxiway D or Taxiway E2. Aircraft landing on Runway 19L will be required to exit at Taxiway D or Taxiway E7. All other taxi routes along the dual parallels will remain unchanged from normal routes.

Phase 3. This phase consists of the rehabilitation of Taxiway J, between Taxiway C and D, the south half of Taxiway E, between Taxiway E7 and the Runway 9-27 runway safety area (RSA) and the adjacent shoulder pavement. Taxiway J is bounded to the east by the Rehabilitate RWY 1R-19L Project (2014), to the south and west by the rehabilitation of Taxiway C (2017), to the north by the Rehabilitate Taxiway D Project (2019). The south half of the taxiway is bounded to the north and east by the Rehabilitate RWY 1R-19L Project (2014) and to the south and west by the Rehabilitate Taxiway F Project (2018). The associated closures include the connector Taxiway J between Taxiways C and D, Taxiway C between Taxiway C6 and F and the connector taxiways from Runway 1R-19L to Taxiway F for the phase duration.

Phase 3 may begin following the completion of Phase 2. Phase 2 work consists of Work Area B and C.

Following the completion of Phase 3, all project areas would reopen. After the taxiway is reopened, the KCAD cannot deice/ treat the taxiway pavement with chemicals during winter operations in accordance with FAA PCC specification requirements.

Phase 3

Construction Activities

- Place barricades and closure markings
- Remove pavement markings temporarily
- Cover/disconnect/jumper/remove airfield lighting/signage temporarily
- Demo taxiway surface pavement
- Construct taxiway surface pavement
- Asphalt Mill and Overlay shoulder pavement
- Airfield lighting improvements
- Install temporary/ permanent pavement marking

Areas to be Closed to Aircraft Operations - During Phase 3, the following areas will be closed to aircraft operations:

- Work Area B
  - Taxiway E (between Runway 9-27 RSA and Taxiway E7)
  - Taxiway E6 (between Runway 1R-19L and Taxiway F)
- Work Area C
  - Taxiway J (between Taxiway C and D)
  - Taxiway C (between Taxiway C6 and F)

Duration of Closures - The total duration of Phase 3 is 45 Calendar Days.

Construction Access and Haul Routes – The contractor shall access the staging area and site via Mexico City Avenue and Paris Street. A temporary haul road and AOA access gate will be required from the staging area. The contractor may utilize the Airport Perimeter Road to access Work Area C via Ottawa Avenue around existing Terminal C. A flagger will be required for traffic crossing Taxiway D. An additional temporary haul rout shall be required from the Airport Perimeter Road to Taxiway F at Taxiway E6 for Work Area B. A flagger will be required for traffic crossing Taxiway F. Alternate access routes to the staging area and site shall require approval by the KCAD.

Taxi Routes – During Phase 3 construction, Taxiway D and F will remain open to air traffic. Taxiway C and Taxiway J will be closed as listed above. Runway 1R-19L will remain operational for both north and south flow operations. During Work Area B work, aircraft landing on Runway 1R will be required to exit at Taxiway D or Taxiway E2 and aircraft landing on Runway 19L will be required to exit at Taxiway D or Taxiway E7. All other taxi routes along the dual parallels will remain unchanged from normal routes.

ARFF Access Routes - ARFF access on the airfield will be the same as available for taxi access for aircraft, as described in Phase 1, Phase 2, and Phase 3 Taxi Routes and shown on Plan Sheet G03. All construction activities will be coordinated with operations, the ARFF, and the emergency responders before and during construction phase changes. The Contractor shall work with ARFF personnel to ensure that emergency response times can be met during the construction.

Construction Staging Areas – The Contractor is provided one central staging area at an existing airport parking lot outside of the AOA along Paris Street. This will also be the location available for the Contractor batch plant and any stockpiling of materials. For all phases this is the only staging area allowed for employee parking, material storage, equipment storage, and material delivery. Access to the AOA will be provided via a temporary AOA access gate installed by the Contractor.

Impacts to NAVAIDs – The Taxiway E and Taxiway J Rehabilitation Project will not impact any NAVAIDS.

Available Runway Length and Declared Distances – Runway 1R-19L's runway length and declared distances will not be affected as part of the Taxiway E and Taxiway J Rehabilitation Project.

3) Areas and Operations Affected by the Construction Activity

The safety and phasing plans (G sheets of the project plan sheets) depict the areas located on the airfield that will be affected by construction activities as well as details for the methods of maintenance of traffic and safety. These plan sheets have been included in **Appendix A** for reference. For specific phase information regarding taxiway closures refer to Section 2) Phasing. Below is the phasing specific table that outlines normal (existing) and construction (anticipated) conditions on the airfield. For brevity, only runways and taxiways that will be impacted by construction have been included in the table. For the scope of work associated with each phase refer to Section 2) Phasing.

Table 5 Effects of Construction on Operations

Project	**Taxiway E and Taxiway J Rehabilitation Project**			
Operational Requirements	**Existing**	**Phase 1**	**Phase 2**	**Phase 3**
RUNWAY 1R-19L	ADG V	Open	Open	Open
TAXIWAY C	ADG V	Open	Open	Closed (between TWY C6 and TWY F)
TAXIWAY E	ADG V	Closed (between TWY E2 and TWY D)	Closed	Closed (between TWY E7 and RWY 9-27 RSA)
TAXIWAY E1	ADG V	Open	Open	Open
TAXIWAY E2	ADG V	Open	Open	Open
TAXIWAY E3	ADG V	Closed	Open	Open
TAXIWAY E4	ADG V	Closed	Closed	Open
TAXIWAY E5	ADG V	Closed	Closed	Open
TAXIWAY E6	ADG V	Open	Closed	Closed
TAXIWAY E7	ADG V	Open	Open	Open
TAXIWAY E8	ADG V	Open	Open	Open
TAXIWAY F	ADG V	Open (ADG IV operations north of TWY D)	Open (ADG IV operations north of TWY D)	Open
TAXIWAY J	ADG V	Open	Open	Closed (between TWY C and TWY D)
TAXIWAY K	ADG V	Closed (between RWY 1R-19L and TWY F)	Closed (between RWY 1R-19L and TWY F)	Open
ARFF Index	C	C	C	C

The KCAD has indicated that there may be additional airfield projects that may occur concurrently with this Project. These projects may include, but are not limited to, the removal of Terminals B and C, and the rehabilitation of the existing Terminal B apron pavement adjacent to Taxiway D.

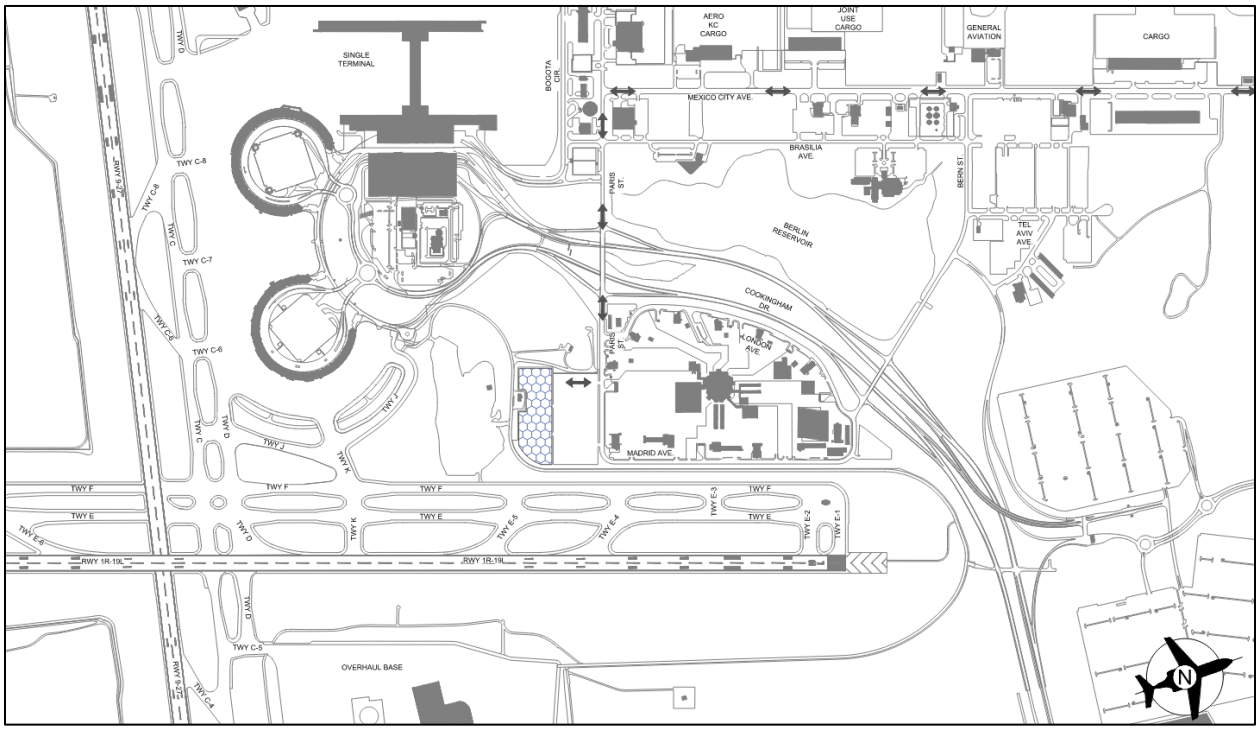
4) Protection of Navigation Aids (NAVAIDs)

The Taxiway E and Taxiway J Rehabilitation Project will not impact any NAVAIDS associated with Runway 1R-19L.

5) Contractor Access

a) Location of Stockpiled construction materials. The Contractor will have one central staging area at the existing airport parking lot along Paris Street outside of the AOA. This will also be the location available for the Contractor batch plant and any stockpiling of materials. For all phases this is the only staging area allowed for material storage, equipment storage, and material delivery. All employee and private vehicles shall be confined to the Contractor's employee parking area. The contractor shall access the staging area and site via Mexico City Avenue and Paris Street. Alternate access routes to the staging area and site shall require approval by the KCAD. The stockpiling of materials will only be permitted within the boundaries of the staging area and the stockpiles shall not exceed 20 feet in height.

Figure 2 Staging Area Location



b) Vehicle and Pedestrian Operations. Access to the air operations area (AOA) will be granted through a temporary AOA access gate as shown on sheet G03 in **Appendix A**. The staging area and plant location will be accessed as described above in Section 4.a. The Contractor may access the construction area via the Airport Perimeter Road and temporary haul roads.

All employee and private vehicles shall be confined to the Contractor's employee parking area. Only the Contractor's construction vehicles will be allowed in the AOA. It is the responsibility of

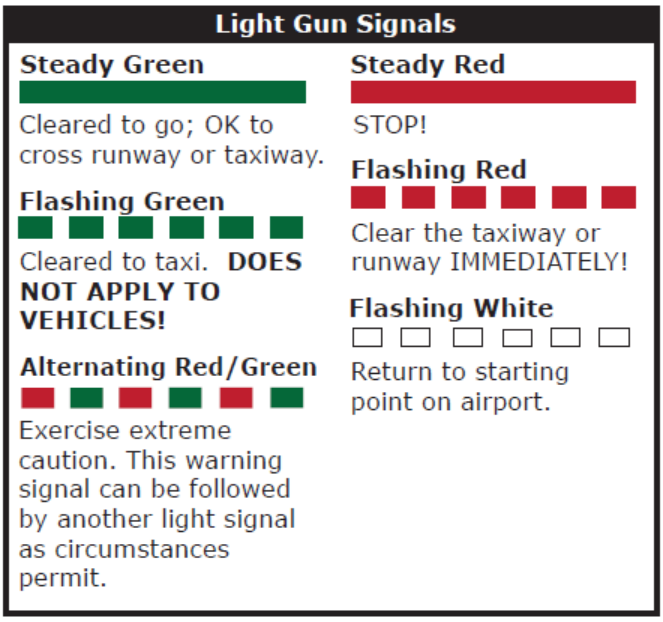
the Contractor to provide vehicles that are authorized to operate on the site. These vehicles will be identified with the Contractor's name on the side of the vehicle and shall be equipped with a flashing amber warning light. These vehicles must also undergo an operations and security check and shall display at all times an airport issued AOA access sticker on the windshield. In addition to vehicles, the Contractor shall identify employees and subcontractor employees which require unescorted access. These individuals will have to complete an airport provided drivers training course in order to be issued an airport identity badge. Once obtained, the airport issued identity badge must be worn by the individual and be visible at all times while in the AOA. If a badged employee leaves the employment of the Contractor, the badge must be returned to the Airport ID Office. All airport access media, including identification badges are to be returned to the Airport ID Office upon project completion.

All non-badged drivers and all non-AOA access sticker identified vehicle will be escorted at all times by properly ID badged personnel, in vehicles properly identified, inspected, and granted access into the AOA. A maximum of two vehicles may be escorted at one time, by a properly identified and badged personnel and vehicle. All non-badged Contractor personnel will be under the direct supervision of an airport badged Contractor employee, whom has responsible charge of the work crew.

c) Two-way Radio Communication. All Contractor employees required to maintain contact with the air traffic control tower (ATCT) must first complete an airport provided movement area, drivers training course in order to be issued an airport identity badge. Drivers wanting to enter a runway or taxiway (movement areas) must first get permission from the air traffic control tower (ATCT). Taking this into consideration, Contractor and subcontractor employees with escort credentials are required to maintain communications with air traffic while inside the AOA via two-way radio. The Contractor will furnish and maintain a handheld radio for each crossing guard, each gate guard, each foreman on the AOA, and the project superintendent, in order to monitor air traffic frequencies and keep a heightened sense of awareness in areas adjacent to project limits that are open to air traffic. Additional personnel may be required to monitor air traffic radio frequencies as necessary. All Contractor furnished radios will be capable of operating on the following frequency: 121.80 MHz. For those unfamiliar with communicating with ATCT, refer to the "Towered Airports" section of **Appendix B** for guidance on radio communications procedures.

Air traffic controllers have a backup system for communicating if radios fail. Controllers use a light gun that flashes different colors to tell pilots or drivers what to do. Figure 3 contains light gun signals used to communicate with drivers in the event radio communication fails. Refer to the "Airfield Signs, Markings and Lighting" section of **Appendix B** for further information regarding vehicle light gun signals.

Figure 3 Light Gun Signals



d) Airport Security and Badging Requirements. Access to secured areas, security identification display area (SIDA), air operations areas (AOA), sterile areas and other areas at MCI requires Kansas City International Airport Identification (ID) Media. Airport ID Media will only be issued upon successful completion of all Transportation Security Administration (TSA) and Airport required security checks. Additional information including frequently asked questions (FAQs) and additional forms can be found by accessing the Kansas City International Airport Security Office. **Figure 4** on the following page displays the AOA and SIDA at MCI.



Figure 4 MCI AOA and SIDA

6) Wildlife Management

Various Contractor operations during construction can directly or indirectly create wildlife hazards at airports. One indirect wildlife hazard that can be created by Contractor personnel activity is the generation of trash. Food scraps must be collected from construction personnel and disposed of appropriately. It is the responsibility of the Contractor to make arrangements for trash removal from the project site as well as the Contractor's staging area. Trash must be removed from the site on a weekly basis as a minimum requirement. Should this practice prove to be inadequate, the Contractor will be asked to increase the frequency of trash removal.

Standing water is a potential wildlife hazard that can be created from construction activity or rainfall events. For all phases of the project, standing water will not be allowed to stand after a rain event for more than 48 hours. The Contractor will take precautions and have ready, at no additional cost to the project, a pump to remove standing water from the project area by pumping to the nearest storm water inlet.

Tall grass and seeds represent another wildlife attractant on airfields. The Contractor is responsible for maintaining the staging area allocated for him including keeping the area free from tall stands of grass. Seeding of the project site also represents a construction activity that can attract wildlife. New plantings should not contain millet, ryegrass, other large seed producing varieties or clover. For specific project seeding requirements refer to the T-901 specification.

The Contractor's staging area is adjacent to the AOA perimeter fence. The Contractor will inspect the condition of the AOA fence in the staging area on a weekly basis to ensure the fence has not been compromised at any location affording wildlife the opportunity to enter the AOA. In the event of a wildlife encounter (ie. dog, fox, coyote, etc.) within the AOA, the Contractor shall immediately contact Airport Operations. Refer to **Table 3** for Airport Operations contact information.

7) Foreign Object Debris (FOD) Management

It is the responsibility of the Contractor to ensure that construction activities do not impact regularly scheduled aircraft operations which includes maintaining a clean project site free from the threat of FOD. The Contractor and its employees will be held responsible for maintaining the project area and keeping it free from FOD whether it is generated from the project site or other airfield areas. Everyone inside the AOA is responsible for the removal of FOD regardless of its origin. In project areas that require the temporary closure of airfield pavement, Airport Personnel will have the final word on the acceptance of cleaned construction areas prior to opening the area for aircraft operations. At a minimum, the final 30 minutes prior to the time airfield pavement is to be opened shall be used for cleanup and to inspect the area for FOD. The Contractor will use a street sweeper or vacuum truck to clean airfield pavement prior to opening to air traffic.

8) Hazardous Materials (HAZMAT) Management

The requirements of the hazardous waste regulations established by the USEPA are presented in 40 CFR 261 through 270. Wastes that are hazardous and regulated under RCRA are classified as either listed or characteristic wastes.

Listed wastes are considered to be hazardous regardless of the concentrations of hazardous chemicals contained in the waste. Please refer to 40 CFR 261.31 through 261.33 for specific information regarding listed wastes. If a waste is not listed the generator should determine if a waste exhibits any of the characteristics of a hazardous waste: ignitability, corrosivity, reactivity, and toxicity. The Contractor will submit a plan that addresses the management of hazardous and non-hazardous waste in accordance with FAA AC 150/5320-15A, Management of Airport Industrial Waste and

include it in its SPCD. The plan must address such issues as fuel deliveries, spill recovery procedures, the availability of Material Safety Data Sheets (MSDS), and other considerations.

9) Notification of Construction Activities

A tentative list of construction and emergency contacts for the Taxiway E and Taxiway J Rehabilitation Project can be found in **Table 3**. Upon award of the project, the Contractor will provide all appropriate contact information for its staff and subcontractors in its SPCD such as project managers, project superintendents, and safety managers. Once the list is obtained, **Table 3** in this document will be updated to provide a comprehensive list of construction and emergency contact information. Should any personnel change occur during the project, it is the responsibility of that organization to provide revised contact information to the Engineer and the Sponsor.

The Notice to Airmen (NOTAM) system provides essential information to personnel concerned with flight and airport operations. NOTAMs provide timely information on unanticipated or temporary changes to components of or hazards in the National Airspace System (NAS) which includes the closure of runways and taxiways. During construction, it will be necessary to close taxiway pavement which will require a NOTAM to be issued. A minimum of 72 hours written notice (weekends excluded) of requested closing shall be directed to the Resident Project Representative (RPR) who will then coordinate the request with the Kansas City International Airport Operations. Only the FAA may issue or cancel NOTAMs on shutdown or irregular operation of FAA owned facilities. Contact information for FAA owned NAVAIDs can be found in **Table 3** and additional information regarding the protection of NAVAIDs and a list of NAVAIDs that require FAA coordination can be found in Section 4) Protection of Navigation Aids (NAVAIDs).

Any person proposing construction or alteration of objects that affect navigable airspace or operational safety of the airport, must notify the Sponsor and the FAA immediately. This includes construction equipment and proposed parking areas for this equipment (i.e. cranes, graders, etc.) on airports. The Contractor should provide HNTB with the appropriate equipment and batch plant heights anticipated to be used during the project. HNTB will prepare FAA Form 7460-1, Notice of Proposed Construction or Alteration, and submit to the Sponsor to forward to the FAA for approval.

The phased construction approach associated with this project creates the potential to impact emergency access routes on the airfield. The Contractor will provide a written notice of changes which will impact the ARFF emergency routes. These notices will be directed through the Resident Project Representative (RPR) who will then coordinate the request with the Kansas City International Airport Operations. Airport Operations will notify the ARFF personnel of any changes to the emergency routing and other potential ARFF impacts, including:

- Rerouting, blocking and restoration of emergency access routes
- Use of hazardous materials on the airfield.

Contact information for ARFF personnel and other emergency contact information can be found in **Table 3**.

10) Inspection Requirements

A Resident Project Representative (RPR) will be onsite for the duration of the Taxiway E and Taxiway J Rehabilitation Project to provide construction oversight and inspection services for the Sponsor on a daily basis. The RPR will ensure conformance with the CSPP, FAA AC 150/5370-2G Inspection Checklist and AC 150/5200-18 for Safety Self-Inspections. The RPR will be responsible for ensuring that the project is constructed in conformance with the contract, plans, and specifications. Should any deviations from the plans and specifications be observed, the Contractor will be required to immediately correct the deviations as instructed by the RPR. The Sponsor will also provide quality assurance/acceptance testing for the project through a separate contract with a materials testing consultant. The Contractor will be responsible for providing quality control testing. The Contractor will identify a Construction Safety Officer in its SPCD as well as a single point of contact for each subcontractor involved on the project. These contacts will be incorporated into **Table 3** in order to provide a comprehensive list of project contacts. The Contractor will also outline in the SPCD its safety policy and internal inspection requirements to ensure airfield safety compliance.

End of phase inspections will be conducted by the RPR, Contractor, and Kansas City International Airport Operations prior to opening airfield pavement to air traffic. In project areas that require the temporary closure of airfield pavement, Airport Operations Personnel will have the final word on the acceptance of cleaned construction areas prior to opening the phase area for aircraft operations. Refer to Section 7) Foreign Object Debris (FOD) Management for additional guidance on cleaning procedures prior to opening pavement.

A Final inspection will also be conducted by the RPR, Contractor, Kansas City Airport Operations, and the Sponsor to confirm that the project has been constructed in accordance with the contract, plans, and specifications. Final acceptance will be determined in accordance with Section 00800.01, Paragraph 50-15 of the General Provisions in the contract documents.

11) Underground Utilities

The Contractor is responsible for contacting the local utility stakeout service for site utility locate requests within the project limits prior to beginning work. The location of these utilities should also be reviewed with the Airport Maintenance staff. Missouri One Call System manages utility locates through its 1-800-DIG-RITE phone contact. Contact information can be found in **Table 3**. The Contractor will also coordinate the identification of all FAA facilities within the project limits prior to beginning work by contacting the FAA. The RPR and Sponsor may assist as necessary for coordination with the FAA. The Contractor will assist utility companies and the FAA in efforts to field verify underground utilities. Below is a list of utility providers at MCI. Contact information for each can be found in **Table 3**.

- Federal Aviation Administration (FAA)
- MCI Airport Electrical
- Evergy
- KCMO Water Department

12) Penalties

The Kansas City International Airport Security Program identifies Individual security violations. The primary Individual Violations are as follows:

- Improper entrance or allowing improper entrance into a Secured Area, SIDA, Sterile Area or AOA.
- Allowing unauthorized entrance into the Secured Area, SIDA, Sterile Area or AOA. *(Note: This violation is a minimum of a 7-day suspension).*
- Failure to properly secure/monitor any access portal that provides access into the Secured Area, SIDA, AOA, and/or Sterile Area.
- Failure to observe Stop & Wait procedures at all security gates.
- Failure to properly display MCI approved Airport Identification Badge in the Secured/SIDA and AOA.
- Piggybacking behind an individual at any access control point, without a valid access need or failure to observe an individual Piggyback behind you.
- Improper escort procedures in the Secured/SIDA, AOA, and Sterile Area.
- Failure to remain at an activated alarm at any Access Control Door/Gate for Law Enforcement or Airport Operations response.
- Failure to challenge an un-badged individual in the Secured Area/SIDA or AOA of the Airport.
- Operating a vehicle in the Secured Area/SIDA or AOA in violation of the Airport's Vehicle Identification Program.
- No pedestrian traffic allowed at any Post Gates.
- Use of Airport ID media, personal or vehicle, that has been reported lost/stolen/unaccountable (minimum 7-day suspension).
- Use of another person's MCI Airport Identification Badge.
- Permitting use of one's MCI Airport Identification Badge by another person.
- Unauthorized testing, tampering, or vandalism of Checkpoint, Screening, or Security Systems.
- Interference with security personnel.
- Tamper or interfere with, compromise, modify, attempt to circumvent any security system, measure, or procedure.

Various penalties exist within the contract documents, plans, and specifications. **Table 6** describes the various violations and subsequent consequences.

Table 6 Penalties for Noncompliance

Violation	Consequence
Exceeding Calendar days allotted for substantial completion of project construction	$2,000/per calendar day
Lost Media Penalty Fee	Secured, SIDA, AOA = $100
*MCI Violations as listed above	1st Offense: Immediate suspension of MCI ID and access media, can be retrieved by offender and supervisor. Attend remedial training.
	2nd Offense: If within 36 months of 1st offense, written notice sent to individual and employer, 7 day suspension of individual's ID and access media. Attend remedial training
	3rd Offense: If within 36 months of 1st offense, revocation of individual's access privileges and ID and access media. Attend remedial training.
*MCI Violations as listed above for items 2 and 12	Immediate minimum of 7 day suspension of individual's MCI ID Media and access Media and attend remedial training

13) Special Conditions

Airport operations take precedence over all work, especially if a question of safety is involved. Special conditions such as low visibility, snow removal, aircraft in distress, aircraft accident, security breach, or work being completed by others may require the rescheduling of Taxiway E and Taxiway J Rehabilitation Project work to accomplish air safety. Full compensation for all costs involved in rescheduling and moving from one work area to another, including work stoppage caused by airport operations will be considered as included in the contract prices paid for contract items of work involved and not additional compensation.

14) Runway and Taxiway Visual Aids

The phasing associated with the Taxiway E and Taxiway J Rehabilitation Project creates temporary closures of various taxiways during the course of construction. Temporary lighting and signs will be required throughout the project due to taxiway closures. No temporary NAVAIDs will be required. All airfield lights and signs shall be secured, to prevent movement due to weather or jet blast. However, all lights and signs shall be mounted on frangible base mounts, to prevent aircraft damage and to maintain an object free area.

The Taxiway E and Taxiway J Rehabilitation Project will include the removal of taxiway pavement markings, lighting, and signs, which will be replaced as part of the project and those required to support phasing of the construction. The markings affected include but are not limited to taxiway centerline, taxiway enhanced centerline and taxiway edge markings. The airfield lighting affected includes but is not limited to taxiway edge lights, centerline lights, and guidance signs. For those unfamiliar with runway and taxiway visual aids, refer to the "Airfields Signs, Markings and Lighting" section of **Appendix B**.

All pavement markings on the Taxiway E and Taxiway J Rehabilitation Project will conform to AC 150/5340-1 "Standards for Airport Markings". The airfield signs will conform to AC 150/5345-44 "Specifications for Runway and Taxiway Signs", AC 150/5340-18 "Standards for Airport Sign Systems" and with AC 150/5345-53 "Airport Lighting Certification Program." Airfield lighting shall

conform to AC 150/5340-30 “Design and Installation Details for Airport Visual Aids”, AC 150/5345-50 “Specification for Portable Runway and Taxiway Lights” and with AC 150/5345-53 “Airport Lighting Certification Program.”

15) Marking and Signs for Access Routes

No pavement marking or sign installation on airport access routes is anticipated as part of the Taxiway E and Taxiway J Rehabilitation Project. Should such work be added to the contract, all pavement markings and signs for construction personnel shall conform to AC 150/5340-18 and, to the extent practicable, with the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) and/or State highway specifications.

16) Hazard Marking and Lighting

Various methods of traffic control will be implemented on the Taxiway E and Taxiway J Rehabilitation Project. All construction vehicles shall be equipped with a flashing amber warning light and all construction equipment shall be equipped with either a flashing amber light or with an aviation warning flag. All construction equipment shall be equipped with back up alarms. Batch plants shall be equipped with a steady burn red warning light on their highest point.

The flashing red lights, on the low-level barricades, shall meet the luminance requirements of MoDOT. All barricades, temporary markers, and other objects placed and left in areas adjacent to any open runway, taxiway, taxilane, or apron shall be as low as possible to the ground and shall be no more than 18 inches in height. Sheet G08 in **Appendix A** contains details for maintenance of traffic. Sheets G04-G07 in **Appendix A** show maintenance of traffic required for Phases 1, 2 and 3. **Table 7** summarizes the methods to be used as well as where and when they will be implemented.

The Contractor shall designate a person to be on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades. The Contractor shall file the contact person's information with the KCAD's Operations Department. It is also the Contractor's responsibility to check all flasher barricades daily, preferably at dusk.

Table 7 Maintenance of Traffic Methods

Method	Use/Location	Phase		
		Phase 1	Phase 2	Phase 3
Orange Safety Fence	Used to define the limits of construction as well as TSA or TOFA limits in turf areas, to prevent encroachment of these areas.	X	X	X
Low Profile Flasher Barricade	Used to define the limits of construction as well as TSA or TOFA limits in paved areas, to prevent encroachment of these areas.	X	X	X

17) Work Zone Lighting for Nighttime Construction

Proper illumination and lighting equipment is required in accordance to AC 150/5370-10 during nighttime construction. Lighting towers should be positioned to avoid blinding effect for the ATCT,

using shielding if necessary. All lighting equipment must be removed prior to taxiways and runways opening.

18) Protection of RSA/TSA, OFA, OFZ and Approach/Departure Surfaces

The phasing limits associated with the Taxiway E and Taxiway J Rehabilitation Project allow the Contractor to work in areas that do not encroach on Runway Safety Area (RSA), Runway Object Free Area (ROFA), Taxiway Safety Area (TSA), Taxiway Object Free Area (TOFA), Obstacle Free Zone (OFZ) or Runway Approach/Departure surfaces of operational runways or taxiways. Although it is not anticipated to be needed, any adjustments of the RSA or TSA shall be coordinated by the Sponsor, with the ATCT and the appropriate FAA Regional Office and a local NOTAM shall be issued. Work areas near active runways will have flasher barricades installed end to end, which delineates the limits of the RSA. Work areas near active taxiways will have flasher barricades installed end to end, which delineates the limits of the TOFA of the specified taxiway. The contractor is required to remove all equipment from the project work area at the end of each working day. Below are the dimensions for the aforementioned safety and object free areas.

Table 8 Safety and Object Free Dimensions

Protected Area	Airplane Design Group	Distance from CL
Runway 1R-19L RSA	D-V	250’
Runway 1R-19L ROFA	D-V	400’
Taxiway E1 TOFA	D-V	142.5’
Taxiway E2 TOFA	D-V	142.5’
Taxiway E3 TOFA	D-V	142.5’
Taxiway E4 TOFA	D-V	142.5’
Taxiway E5 TOFA	D-V	142.5’
Taxiway E6 TOFA	D-V	142.5’
Taxiway E7 TOFA	D-V	142.5’
Taxiway E8 TOFA	D-V	142.5’
Taxiway C TOFA	D-V	142.5’
Taxiway D TOFA	D-V	142.5’
Taxiway J TOFA	D-V	142.5’
Taxiway K TOFA	D-V	142.5’

Open trenches or excavation are not permitted within the RSA of active runways or the TSA of active taxiways. Trenches within the RSA or TSA need to be backfilled or appropriately covered prior to the pavement being open to traffic. For further information regarding stockpiles refer to Section 5) Contractor Access. All grading shall conform to the requirements of the RSA and TSA standards. As previously mentioned, no construction, including excavation, is allowed in the TOFA, while the taxiway is open to traffic.

Reference AC 150/5370-2G Section 2.22.3.4 for restrictions and specific requirements in rare circumstances where an open trench is necessary inside the TSA or TOFA.

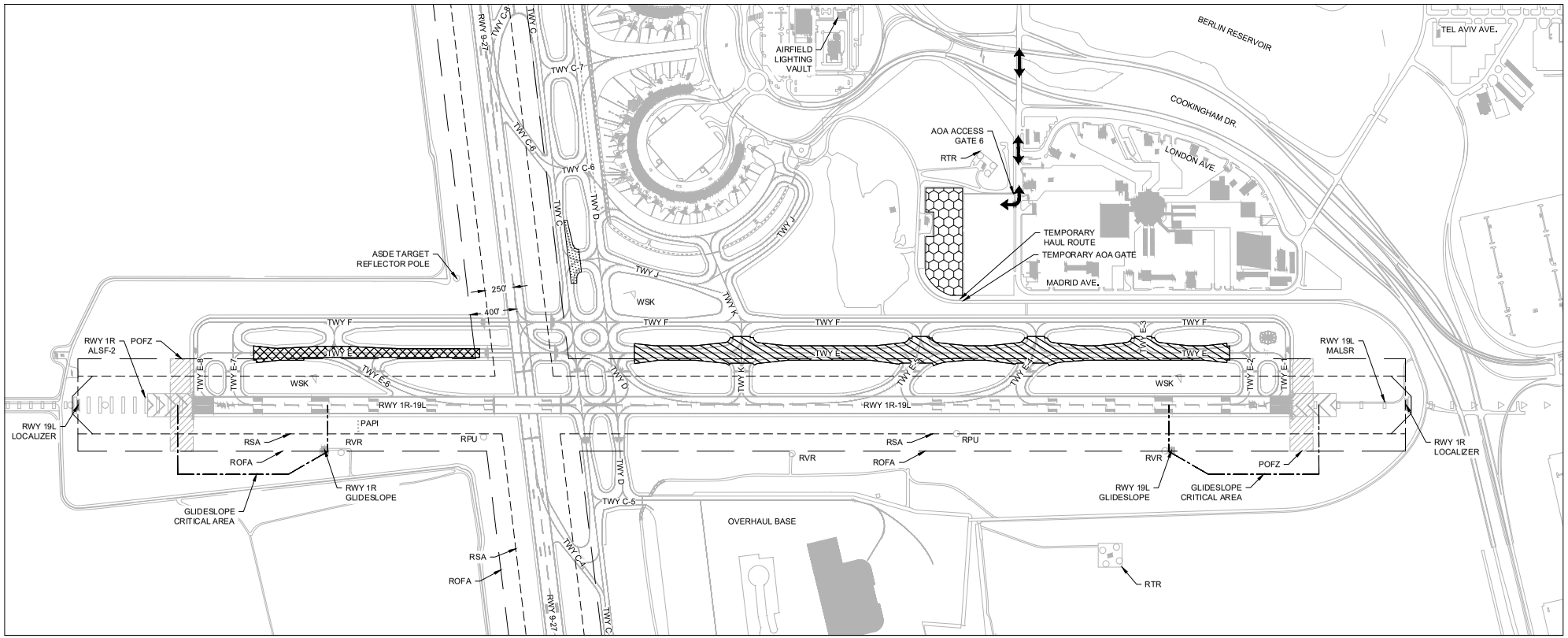
19) Other Limitations on Construction

Prior to the start of construction, the Contractor must provide HNTB with specific equipment and batch plant heights in order to complete FAA form 7460-1 and submit for FAA airspace review. A determination letter from the FAA acknowledging equipment heights within the project area is required before construction can commence.

No open flames, including flare pots are allowed within the AOA limits, at any time. The Contractor shall not use open flame welding or torches, unless adequate fire safety precautions have been made and the airport operations have approved their use. No blasting is allowed on airport property and the usage of electrical blasting caps within 1,000 feet of the airport property is prohibited.

APPENDIX A

PROJECT SAFETY AND PHASING PLAN SHEETS



GENERAL NOTES:

1. PHASE 1 MAY BEGIN FOLLOWING THE NOTICE TO PROCEED (NTP). PHASE 1 IS ANTICIPATED TO START IN THE LATE SPRING OF 2023 WITH A TOTAL OF 66 CALENDAR DAYS. PHASE 1 WORK SHALL ONLY INCLUDE WORK AREA A.
2. PHASE 2 MAY BEGIN FOLLOWING THE COMPLETION OF PHASE 1 WITH A TOTAL OF 44 CALENDAR DAYS. PHASE 2 SHALL ONLY INCLUDE WORK AREAS A AND B.
3. PHASE 3 MAY BEGIN FOLLOWING THE COMPLETION OF PHASE 2 WITH A TOTAL OF 45 CALENDAR DAYS. PHASE 3 SHALL ONLY INCLUDE WORK AREAS B AND C.
4. THE CONTRACTOR SHALL NOT MAKE ANY CHANGES AND/OR COMBINATIONS TO THE PROJECT PHASING LIMITS OR ORDER OF WORK WITHOUT PRIOR APPROVAL BY THE ENGINEER, AIRPORT OPERATIONS, AND THE KCAD. THE KCAD RESERVES THE RIGHT TO MAKE CHANGES TO THE SCHEDULE AS IT DEEMS NECESSARY.
5. ALL PROJECT WORK SHALL BE COMPLETED WITHIN THE SPECIFIED CALENDAR DAYS PER EACH PHASE. REFERENCE THE PROJECT MANUAL FOR INFORMATION REGARDING LIQUIDATED DAMAGES.

	CONSTRUCTION CALENDAR DAYS	CALENDAR YEAR 2023					
		JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER
		PHASE 1		PHASE 2		PHASE 3	
WORK AREA A	110						
WORK AREA B	89						
WORK AREA C	45						

LEGEND:

- WORK AREA A LIMITS
- WORK AREA B LIMITS
- WORK AREA C LIMITS
- CONTRACTOR STAGING & BATCH PLANT SITE
- CONTRACTOR ACCESS ROUTE

N

400 0 400 800
Scale Feet

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT
KCI

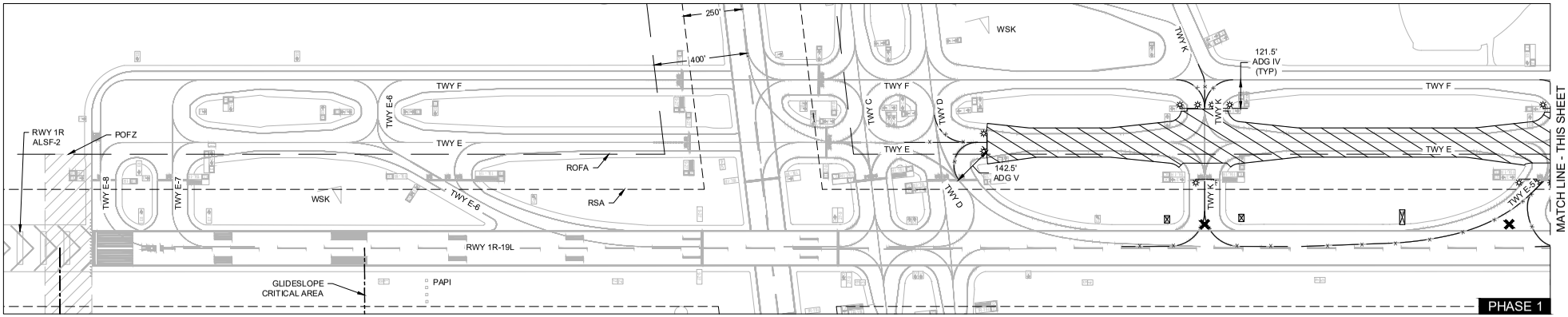
HNTB
715 Kirk Drive
Kansas City, MO 64105
License No. 001270

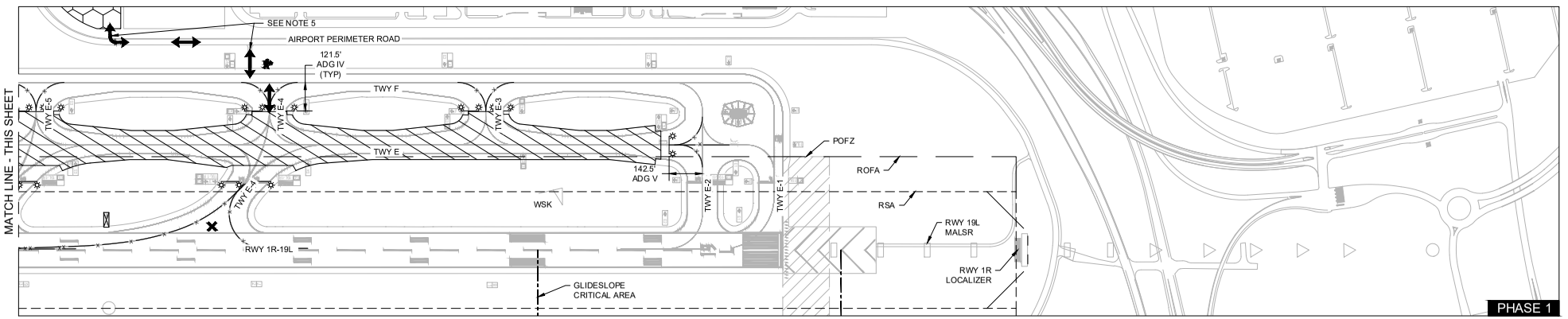
TAXIWAY E AND TAXIWAY J REHABILITATION

OVERALL PHASING PLAN

Design: MMW	CAD File: 62230566G04.dwg	Aviation Project No.	62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	G04 5 of 104

CAD File: 62230566G04.dwg





GENERAL NOTES:

1. PRIOR TO THE START OF WORK, THE CONTRACTOR SHALL INSTALL THE REQUIRED TRAFFIC CONTROL AS SHOWN. COST SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC. TRAFFIC CONTROL WILL REQUIRE THE TEMPORARY CLOSURE OF RUNWAY 1R-19L, TAXIWAY D, AND TAXIWAY F. CLOSURE OF RUNWAY 1R-19L, TAXIWAY D, AND TAXIWAY F SHALL BE COORDINATED WITH AIRPORT OPERATIONS AT LEAST 72 HOURS IN ADVANCE OF THE START OF WORK.

2. MARKINGS SHALL BE BLACKED OUT THAT LEAD INTO AREAS CLOSED FOR CONSTRUCTION AND COSTS SHALL BE PER SPECIFICATION P-620-2, TEMPORARY PAVEMENT MARKINGS. RUNWAY HOLD BARS, SURFACE PAINTED HOLD POSITION SIGNS AND THERMOPLASTIC PAVEMENT MARKINGS SHALL REMAIN. THE EXACT EXTENT AND LOCATIONS OF MARKINGS TO BE BLACKED OUT SHALL BE COORDINATED WITH THE RPR AND AIRPORT OPERATIONS PRIOR TO START OF THE PHASE AND MAY NOT COMMENCE UNTIL THE PHASE AREA HAS BEEN CLOSED TO AIRCRAFT TRAFFIC. THE CONTRACTOR IS RESPONSIBLE FOR REPAINTING OF ANY PERMANENT MARKINGS AND INSTALLATION OF NEW TEMPORARY MARKINGS AS NECESSARY PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS. REPAINTING BLACKOUT PERMANENT MARKINGS LEADING INTO CLOSURE AREAS AND NEW PAVEMENT MARKINGS ARE REQUIRED AS SHOWN HERE AND ON THE MARKING PLANS WITH COST BE PER ITEM P-620-1, RUNWAY AND TAXIWAY MARKING AND P-620-2, TEMPORARY PAVEMENT MARKINGS.

3. LIGHTS AND SIGNAGE SHALL BE COVERED/ DISCONNECTED/ JUMPERED/ REMOVED WITHIN AREAS CLOSED FOR CONSTRUCTION EXCEPT AS FOLLOWS: ELEVATED AND IN-PAVEMENT RUNWAY GUARD LIGHTS AND RUNWAY HOLDING POSITION SIGNS SHALL REMAIN LIT. TAXIWAY CENTERLINE LIGHTS LEADING INTO AREAS CLOSED FOR CONSTRUCTION SHALL BE DISCONNECTED OR COVERED. TAXIWAY DIRECTION SIGNS ON ACTIVE PAVEMENTS POINTING TOWARD AREAS CLOSED FOR CONSTRUCTION SHALL REMAIN LIT. THE EXACT EXTENT AND LOCATIONS OF AFFECTED LIGHTS AND SIGNAGE SHALL BE COORDINATED WITH THE RPR AND AIRPORT OPERATIONS PRIOR TO START OF THE PHASE AND MAY NOT COMMENCE UNTIL THE PHASE AREA HAS BEEN CLOSED TO AIRCRAFT TRAFFIC. ALL WORK MUST BE COMPLETED PRIOR TO DUSK OR, IF AT NIGHT, IMMEDIATELY AFTER THE PHASE AREA HAS BEEN CLOSED TO AIRCRAFT TRAFFIC. THE CONTRACTOR IS RESPONSIBLE FOR RE-INSTALLATION OF ANY LIGHTS AND SIGNAGE THAT ARE COVERED OR REMOVED AS NECESSARY PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS. COST SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC.

4. CONTRACTOR SHALL INSTALL SILT FENCE TO DELINEATE THE BOUNDARY OF THE RUNWAY SAFETY AREA (RSA) FOR RUNWAY 1R-19L AND TAXIWAY OBJECT FREE AREA (TOFA) OF TAXIWAY F. SILT FENCE SHALL REMAIN 2FT (MINIMUM) CLEAR OF THE TOFA. NO UNAUTHORIZED OBJECTS OR PERSONNEL ARE ALLOWED INSIDE AN ACTIVE TOFA. REFERENCE EROSION CONTROL DETAILS FOR SILT FENCE INSTALLATION. INSTALLATION OF THIS SILT FENCE SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC.

5. THE CONTRACTOR SHALL UTILIZE THE AIRPORT PERIMETER ROAD TO ACCESS THE PHASE 1 WORK AREA VIA A TEMPORARY AOA GATE. THE CONTRACTOR SHALL CONSTRUCT A NEW HAUL ROAD FROM THE CONTRACTOR STAGING AREA TO THE EXISTING AIRPORT PERIMETER ROAD AND IMPROVE THE EXISTING HAUL ROAD TO TAXIWAY F FROM THE AIRPORT PERIMETER ROAD AS NECESSARY FOR HAULING OPERATIONS. THE CONTRACTOR SHALL NOT USE THE OVERHAUL BASE APRON OR ADJACENT TAXIWAYS FOR HAULING OPERATIONS. HAUL ROUTES LIMITS TO BE CONSTRUCTED AND USED SHALL BE SHOWN ON CONTRACTOR SUBMITTED SITE PLAN. ANY IMPROVEMENTS REQUIRED FOR HAULING OPERATIONS ON THE AIRPORT PERIMETER ROAD OR THE EXISTING CONNECTOR ROADWAY SHALL BE INCIDENTAL TO ITEM C-105-1, MOBILIZATION. ALL TEMPORARY HAUL ROADS AND THE CONNECTOR ROADWAY FROM THE AIRPORT PERIMETER ROAD TO TAXIWAY F SHALL BE REMOVED ENTIRELY, REGRADED, AND SEEDED FOLLOWING COMPLETION OF THE PROJECT.

6. PAVEMENT MARKING REMOVAL AND REMARKING INDICATED ON THE CD AND CM SHEETS OUTSIDE OF THE BARRICADE LIMITS NOT REQUIRED FOR MAINTENANCE OF TRAFFIC SHALL NOT BE REMOVED UNTIL TEMPORARY MARKINGS ARE TO BE INSTALLED AT THE END OF THE PHASE. THE CONTRACTOR SHALL COORDINATE WITH AIRPORT OPERATIONS FOR THE CLOSURE OF TAXIWAY F TO COMPLETE REQUIRED PAVEMENT MARKING WORK.

7. END OF PHASE INSPECTIONS WILL BE CONDUCTED BY THE RPR, CONTRACTOR, AND AIRPORT OPERATIONS PRIOR TO OPENING AIRFIELD PAVEMENT TO AIR TRAFFIC. IN PROJECT AREAS THAT REQUIRE THE TEMPORARY CLOSURE OF AIRFIELD PAVEMENT, AIRPORT OPERATIONS WILL HAVE THE FINAL WORD ON THE ACCEPTANCE OF CLEANED CONSTRUCTION AREAS PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS.

PHASE 1	RWY 1R		RWY 19L		TWY F
AVAILABILITY	ARRIVAL	DEPARTURE	ARRIVAL	DEPARTURE	OPEN
CONSTRAINTS	EXIT AT TWY C, D, E-1 OR E-2	N/A	EXIT AT TWY C, D, E-6 OR E-7	N/A	ADG IV (NORTH OF TWY D)
NAVAIDS	NO IMPACT		NO IMPACT		N/A

PHASE	WORK ACTIVITIES	PAVEMENT CLOSURES	MAX CLOSURE DURATION (DAYS)
PHASE 1	• SURFACE PCCP RECONSTRUCTION: TWY E AND SHOULDERS • AIRFIELD LIGHTING INSTALLATION • TEMPORARY/ PERMANENT PAVEMENT MARKING	TWY E (BETWEEN TWY D AND E-2) TWY E-3, E-4, E-5 AND K (BETWEEN RWY 1R-19L AND TWY F)	66

LEGEND:

- WORK AREA A LIMITS
- CONTRACTOR ACCESS ROUTE
- LOW PROFILE FLASHER BARRICADE (1 / G08)
- TAXIWAY CLOSURE MARKER (2 / G08)
- CENTERLINE LIGHTS/MARKINGS TO BE TURNED OFF OR BLACKED OUT
- SIGNAGE TO BE COVERED
- FLAGGER

200 0 200 400
Scale Feet

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT
KCI

HNTB
715 Kirk Drive
Kansas City, MO 64105
License No. 001270

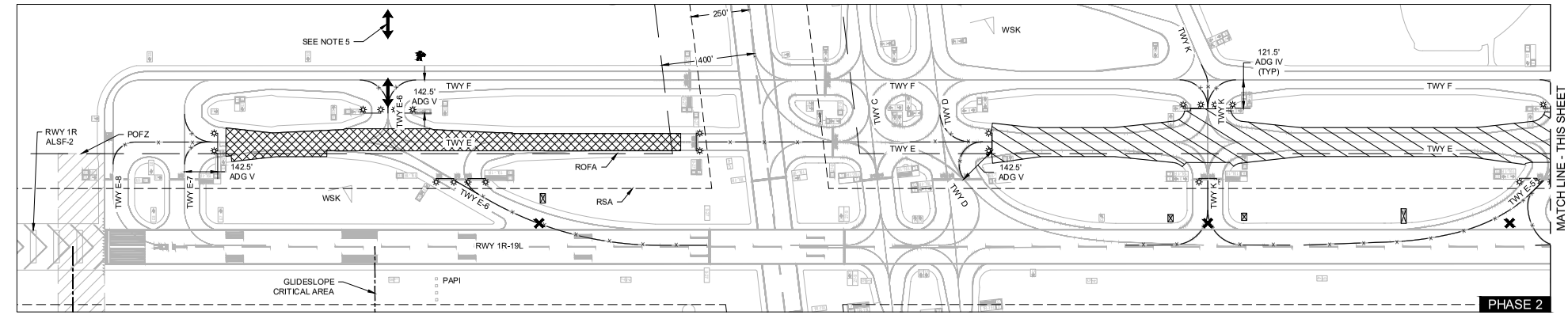
CITY OF FOUNTAINS
HEART OF THE NATION
KANSAS CITY
MISSOURI

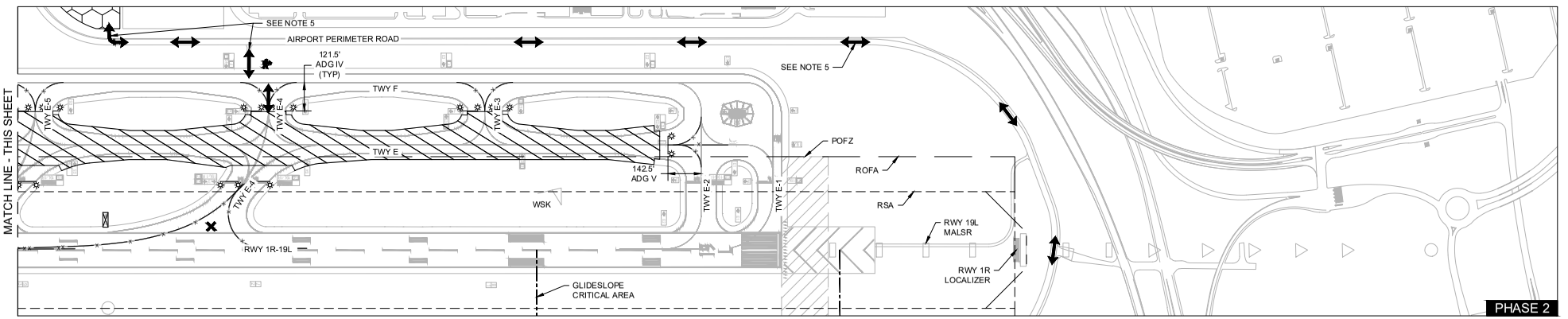
TAXIWAY E AND TAXIWAY J REHABILITATION

PHASING PLAN 1

Design: MMW	CAD File: 62230566G04.dwg	Aviation Project No. 62230566	
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. G05	6 of 104

CAD File: 62230566G04.dwg





GENERAL NOTES:

1. PRIOR TO THE START OF WORK, THE CONTRACTOR SHALL INSTALL THE REQUIRED TRAFFIC CONTROL AS SHOWN. COST SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC. TRAFFIC CONTROL WILL REQUIRE THE TEMPORARY CLOSURE OF RUNWAY 1R-19L, RUNWAY 9-27, AND TAXIWAY F. CLOSURE OF RUNWAY 1R-19L, RUNWAY 9-27, AND TAXIWAY F SHALL BE COORDINATED WITH AIRPORT OPERATIONS AT LEAST 72 HOURS IN ADVANCE OF THE START OF WORK.

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5. THE CONTRACTOR SHALL UTILIZE THE AIRPORT PERIMETER ROAD TO ACCESS THE PHASE 2 WORK AREA VIA A TEMPORARY AOA GATE. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN A NEW HAUL ROAD FROM THE CONTRACTOR STAGING AREA AND TAXIWAY F TO THE EXISTING AIRPORT PERIMETER ROAD AND IMPROVE THE EXISTING HAUL ROAD AS NECESSARY FOR HAULING OPERATIONS. THE CONTRACTOR SHALL NOT USE THE OVERHAUL BASE APRON OR ADJACENT TAXIWAYS FOR HAULING OPERATIONS. HAUL ROUTES LIMITS TO BE CONSTRUCTED AND USED SHALL BE SHOWN ON CONTRACTOR SUBMITTED SITE PLAN. ANY IMPROVEMENTS REQUIRED FOR HAULING OPERATIONS ON THE AIRPORT PERIMETER ROAD OR THE EXISTING CONNECTOR ROADWAY SHALL BE INCIDENTAL TO ITEM C-105-1, MOBILIZATION. THIS SHALL INCLUDE STORM PIPES UNDER THE ROADWAY TO MAINTAIN DRAINAGE TO THE SATISFACTION OF AIRPORT OPERATIONS. ALL TEMPORARY HAUL ROADS AND THE CONNECTOR ROADWAY FROM THE AIRPORT PERIMETER ROAD TO TAXIWAY F SHALL BE REMOVED ENTIRELY, REGRADED, AND SEEDED FOLLOWING COMPLETION OF THE PROJECT.

6. PAVEMENT MARKING REMOVAL AND REMARKING INDICATED ON THE CD AND CM SHEETS OUTSIDE OF THE BARRICADE LIMITS NOT REQUIRED FOR MAINTENANCE OF TRAFFIC SHALL NOT BE REMOVED UNTIL TEMPORARY MARKINGS ARE TO BE INSTALLED AT THE END OF THE PHASE. THE CONTRACTOR SHALL COORDINATE WITH AIRPORT OPERATIONS FOR THE CLOSURE OF TAXIWAY F TO COMPLETE REQUIRED PAVEMENT MARKING WORK.

7. END OF PHASE INSPECTIONS WILL BE CONDUCTED BY THE RPR, CONTRACTOR, AND AIRPORT OPERATIONS PRIOR TO OPENING AIRFIELD PAVEMENT TO AIR TRAFFIC. IN PROJECT AREAS THAT REQUIRE THE TEMPORARY CLOSURE OF AIRFIELD PAVEMENT, AIRPORT OPERATIONS WILL HAVE THE FINAL WORD ON THE ACCEPTANCE OF CLEANED CONSTRUCTION AREAS PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS.

PHASE 2	RWY 1R		RWY 19L		TWY F
AVAILABILITY	ARRIVAL	DEPARTURE	ARRIVAL	DEPARTURE	OPEN
CONSTRAINTS	EXIT AT TWY C, D, E-1 OR E-2	N/A	EXIT AT TWY C, D, E-7 OR E-8	N/A	ADG IV (NORTH OF TWY D)
NAVAIDS	NO IMPACT		NO IMPACT		N/A

PHASE	WORK ACTIVITIES	PAVEMENT CLOSURES	MAX CLOSURE DURATION (DAYS)
PHASE 2	• SURFACE PCCP RECONSTRUCTION: TWY E AND SHOULDERS • AIRFIELD LIGHTING INSTALLATION • TEMPORARY/ PERMANENT PAVEMENT MARKING	TWY E (BETWEEN TWY D AND E-2 AND BETWEEN RWY 9-27 RSA AND TWY E-7) TWY E-3, E-4, E-5, E-6 AND K (BETWEEN RWY 1R-19L AND TWY F)	44

LEGEND:

- WORK AREA A LIMITS
- WORK AREA B LIMITS
- CONTRACTOR ACCESS ROUTE
- LOW PROFILE FLASHER BARRICADE (1 / G08)
- TAXIWAY CLOSURE MARKER (2 / G08)
- CENTERLINE LIGHTS/MARKINGS TO BE TURNED OFF OR BLACKED OUT
- SIGNAGE TO BE COVERED
- FLAGGER

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Scale Feet

No.	Revision	Date

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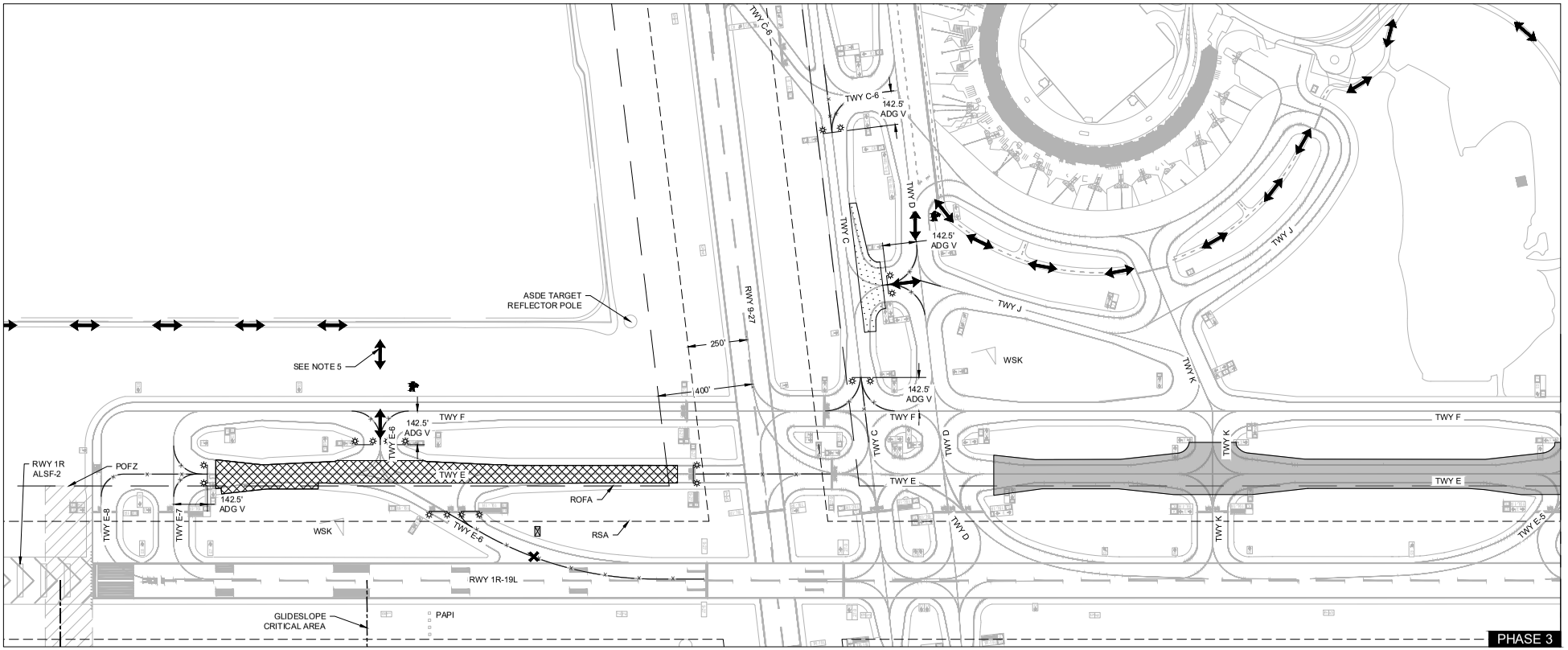
TAXIWAY E AND TAXIWAY J
REHABILITATION

PHASING PLAN 2

Design: MMW	CAD File: 62230566G04.dwg	Aviation Project No. 62230566	
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. G06	7 of 104

CAD File: 62230566G04.dwg



GENERAL NOTES:

1. PRIOR TO THE START OF WORK, THE CONTRACTOR SHALL INSTALL THE REQUIRED TRAFFIC CONTROL AS SHOWN. COST SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC. TRAFFIC CONTROL WILL REQUIRE THE TEMPORARY CLOSURE OF TAXIWAYS ADJACENT TO THE WORK AREA. CLOSURE OF TAXIWAYS ADJACENT TO THE WORK AREA SHALL BE COORDINATED WITH AIRPORT OPERATIONS AT LEAST 72 HOURS IN ADVANCE OF THE START OF WORK.

2. MARKINGS SHALL BE BLACKED OUT THAT LEAD INTO AREAS CLOSED FOR CONSTRUCTION AND COSTS SHALL BE PER SPECIFICATION P-620-2, TEMPORARY PAVEMENT MARKINGS. RUNWAY HOLD BARS, SURFACE PAINTED HOLD POSITION SIGNS AND THERMOPLASTIC PAVEMENT MARKINGS SHALL REMAIN. THE EXACT EXTENT AND LOCATIONS OF MARKINGS TO BE BLACKED OUT SHALL BE COORDINATED WITH THE RPR AND AIRPORT OPERATIONS PRIOR TO START OF THE PHASE AND MAY NOT COMMENCE UNTIL THE PHASE AREA HAS BEEN CLOSED TO AIRCRAFT TRAFFIC. THE CONTRACTOR IS RESPONSIBLE FOR REPAINTING OF ANY PERMANENT MARKINGS AND INSTALLATION OF NEW TEMPORARY MARKINGS AS NECESSARY PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS. REPAINTING BLACKOUT PERMANENT MARKINGS LEADING INTO CLOSURE AREAS AND NEW PAVEMENT MARKINGS ARE REQUIRED AS SHOWN HERE AND ON THE MARKING PLANS WITH COST BE PER SPECIFICATION P-620-1, RUNWAY AND TAXIWAY MARKING AND P-620-2, TEMPORARY PAVEMENT MARKINGS.

3. LIGHTS AND SIGNAGE SHALL BE COVERED/ DISCONNECTED/ JUMPERED/ REMOVED WITHIN AREAS CLOSED FOR CONSTRUCTION EXCEPT AS FOLLOWS: ELEVATED AND IN-PAVEMENT RUNWAY GUARD LIGHTS AND RUNWAY HOLDING POSITION SIGNS SHALL REMAIN LIT. TAXIWAY CENTERLINE LIGHTS LEADING INTO AREAS CLOSED FOR CONSTRUCTION SHALL BE DISCONNECTED OR COVERED. TAXIWAY DIRECTION SIGNS ON ACTIVE PAVEMENTS POINTING TOWARD AREAS CLOSED FOR CONSTRUCTION SHALL REMAIN LIT. THE EXACT EXTENT AND LOCATIONS OF AFFECTED LIGHTS AND SIGNAGE SHALL BE COORDINATED WITH THE RPR AND AIRPORT OPERATIONS PRIOR TO START OF THE PHASE AND MAY NOT COMMENCE UNTIL THE PHASE AREA HAS BEEN CLOSED TO AIRCRAFT TRAFFIC. ALL WORK MUST BE COMPLETED PRIOR TO DUSK OR, IF AT NIGHT, IMMEDIATELY AFTER THE PHASE AREA HAS BEEN CLOSED TO AIRCRAFT TRAFFIC. THE CONTRACTOR IS RESPONSIBLE FOR RE-INSTALLATION OF ANY LIGHTS AND SIGNAGE THAT ARE COVERED OR REMOVED AS NECESSARY PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS. COST SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC.

4. CONTRACTOR SHALL INSTALL SILT FENCE TO DELINEATE THE BOUNDARY OF THE RUNWAY SAFETY AREA (RSA) FOR RUNWAY 1R-19L. SILT FENCE SHALL REMAIN 2FT (MINIMUM) CLEAR OF THE TOFA. NO UNAUTHORIZED OBJECTS OR PERSONNEL ARE ALLOWED INSIDE AN ACTIVE TOFA. REFERENCE EROSION CONTROL DETAILS FOR SILT FENCE INSTALLATION. INSTALLATION OF THIS SILT FENCE SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC.

5. THE CONTRACTOR SHALL UTILIZE THE AIRPORT PERIMETER ROAD TO ACCESS THE PHASE 3 WORK AREA VIA A TEMPORARY AOA GATE. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN A NEW HAUL ROAD FROM THE CONTRACTOR STAGING AREA AND TAXIWAY F TO THE EXISTING AIRPORT PERIMETER ROAD AND IMPROVE THE EXISTING HAUL ROAD AS NECESSARY FOR HAULING OPERATIONS. THE CONTRACTOR SHALL NOT USE THE OVERHAUL BASE APRON OR ADJACENT TAXIWAYS FOR HAULING OPERATIONS. HAUL ROUTES LIMITS TO BE CONSTRUCTED AND USED SHALL BE SHOWN ON CONTRACTOR SUBMITTED SITE PLAN. ANY IMPROVEMENTS REQUIRED FOR HAULING OPERATIONS ON THE AIRPORT PERIMETER ROAD OR THE EXISTING CONNECTOR ROADWAY SHALL BE INCIDENTAL TO ITEM C-105-1, MOBILIZATION. ALL TEMPORARY HAUL ROADS SHALL BE REMOVED ENTIRELY, REGRADED, AND SEEDED FOLLOWING COMPLETION OF THE PROJECT.

6. PAVEMENT MARKING REMOVAL AND REMARKING INDICATED ON THE CD AND CM SHEETS OUTSIDE OF THE BARRICADE LIMITS NOT REQUIRED FOR MAINTENANCE OF TRAFFIC SHALL NOT BE REMOVED UNTIL TEMPORARY MARKINGS ARE TO BE INSTALLED AT THE END OF THE PHASE. THE CONTRACTOR SHALL COORDINATE WITH AIRPORT OPERATIONS FOR THE CLOSURE OF TAXIWAY F AND TAXIWAY D TO COMPLETE REQUIRED PAVEMENT MARKING WORK.

7. END OF PHASE INSPECTIONS WILL BE CONDUCTED BY THE RPR, CONTRACTOR, AND AIRPORT OPERATIONS PRIOR TO OPENING AIRFIELD PAVEMENT TO AIR TRAFFIC. IN PROJECT AREAS THAT REQUIRE THE TEMPORARY CLOSURE OF AIRFIELD PAVEMENT, AIRPORT OPERATIONS WILL HAVE THE FINAL WORD ON THE ACCEPTANCE OF CLEANED CONSTRUCTION AREAS PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS.

PHASE 3	RWY 1R		RWY 19L		TWY F
AVAILABILITY	ARRIVAL	DEPARTURE	ARRIVAL	DEPARTURE	OPEN
CONSTRAINTS	N/A	N/A	EXIT AT TWY C, D, E-7 OR E-8	N/A	N/A
NAVAIDS	NO IMPACT		NO IMPACT		N/A

PHASE	WORK ACTIVITIES	PAVEMENT CLOSURES	MAX CLOSURE DURATION (DAYS)
PHASE 3	• SURFACE PCCP RECONSTRUCTION: TWY E, TWY J AND TWY E SHOULDERS • 2" ASPHALT MILL AND OVERLAY: TWY J SHOULDERS • AIRFIELD LIGHTING INSTALLATION • TEMPORARY/ PERMANENT PAVEMENT MARKING	TWY C (BETWEEN TWY C-6 AND F) TWY E (BETWEEN RWY 9-27 RSA AND TWY E-7) TWY E-6 (BETWEEN RWY 1R-19L AND TWY F) TWY J (BETWEEN TWY C AND D)	45

LEGEND:

- WORK AREA B LIMITS
- WORK AREA C LIMITS
- PREVIOUSLY COMPLETED
- CONTRACTOR ACCESS ROUTE
- LOW PROFILE FLASHER BARRICADE (1 / G08)
- TAXIWAY CLOSURE MARKER (2 / G08)
- CENTERLINE LIGHTS/MARKINGS TO BE TURNED OFF OR BLACKED OUT
- SIGNAGE TO BE COVERED
- FLAGGER

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Scale Feet

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TAXIWAY E AND TAXIWAY J REHABILITATION

PHASING PLAN 3

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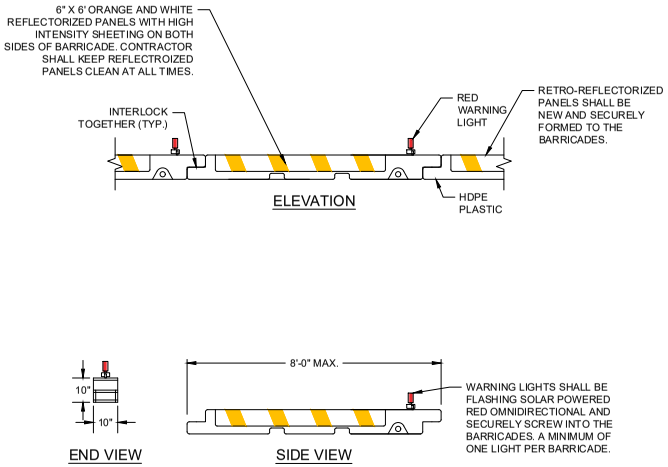
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. G07	8 of 104

CAD File: 62230566G04.dwg

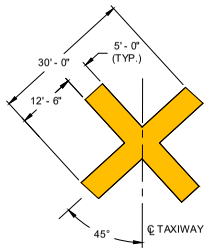


1 LOW PROFILE FLASHER BARRICADE

NOT TO SCALE

LOW PROFILE FLASHER BARRICADE NOTES:

1. PLACEMENT AND MAINTENANCE OF BARRICADES SHALL BE CONSIDERED SUBSIDIARY TO ITEM C-106-1, MAINTENANCE OF TRAFFIC.
2. 360 DEG. FLASHERS TO BE BATTERY OPERATED AND/OR SOLAR POWERED.
3. FACING OF LOW-PROFILE BARRICADE TO BE COVERED WITH REFLECTIVE MATERIAL.
4. LOW-PROFILE BARRICADES TO BE PLACED END TO END, NO SPACING BETWEEN BARRICADES ALONG OPERATIONAL PAVEMENT, ADJACENT TO CONSTRUCTION.
5. 360 DEG. FLASHERS SHALL BE SECURED TO THE BARRICADES, PER MANUFACTURER'S INSTRUCTIONS.
6. LOW-PROFILE BARRICADES SHALL BE OF LOW MASS, EASILY COLLAPSIBLE UPON CONTACT WITH AN AIRCRAFT OR ANY OF IT'S COMPONENTS, AND WEIGHTED.
7. THE CONTRACTOR SHALL MAINTAIN ALL BARRICADES AND ENSURE THEY ARE IN WORKING ORDER TWENTY-FOUR (24) HOURS A DAY, FOR THE DURATION OF THE PROJECT. THE BARRICADE LIGHTING SHALL BE CHECKED NIGHTLY BY THE CONTRACTOR.
8. THE LIGHTS SHALL BE OPERATIONAL AT EACH BARRICADE LOCATION AT ALL TIMES. ANY LIGHTS FOUND NON-OPERATIONAL SHALL BE REPAIRED OR REPLACED.
9. ALL BARRIERS AND BARRIER PLACEMENT SHALL BE IN COMPLIANCE WITH AC 150/5370-2G, OR MOST CURRENT EDITION.
10. ALL CONTRACTOR-PROVIDED BARRIERS AND LIGHTS SHALL CONFORM TO THE REQUIREMENTS OF SPECIFICATIONS. ALL BARRIERS SHALL BE FILLED WITH WATER AFTER PLACEMENT. FILL WITH POTASSIUM ACETATE SOLUTION DURING PERIODS OF SUB-FREEZING TEMPERATURES TO PREVENT FREEZING.
11. LIGHTED BARRICADES MAY BE USED TO MARK EXCAVATIONS OR TRENCHES.
12. BARRICADES SHALL BE KEPT CLEAN AT ALL TIMES.



2 TAXIWAY CLOSURE MARKER

NOT TO SCALE

TAXIWAY CLOSURE MARKER NOTES:

1. TAXIWAY CLOSURE MARKERS MAY BE CONSTRUCTED FROM: 4'X8'X1/2" EXTERIOR GRADE PLYWOOD PAINTED YELLOW WITH 6" BLACK BORDER, OR YELLOW POLYETHYLENE WEAVE FABRIC SECURED TO TREATED 2"X4" FRAME AND WEIGHED WITH SANDBAGS. SANDBAGS SHALL BE PAINTED YELLOW.
2. PLACEMENT AND MAINTENANCE OF TAXIWAY CLOSURE MARKERS SHALL BE CONSIDERED SUBSIDIARY TO ITEM C-106-1, MAINTENANCE OF TRAFFIC.
3. TAXIWAY CLOSURE MARKERS MUST BE SECURED TO PREVENT DISPLACEMENT BY JET BLAST OR WINDS.

No.	Revision	Date

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MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

SAFETY AND PHASING DETAILS

Design: MMW	CAD File: 62230566G08.dwg	Aviation Project No. 62230566	
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. G08	9 of 104

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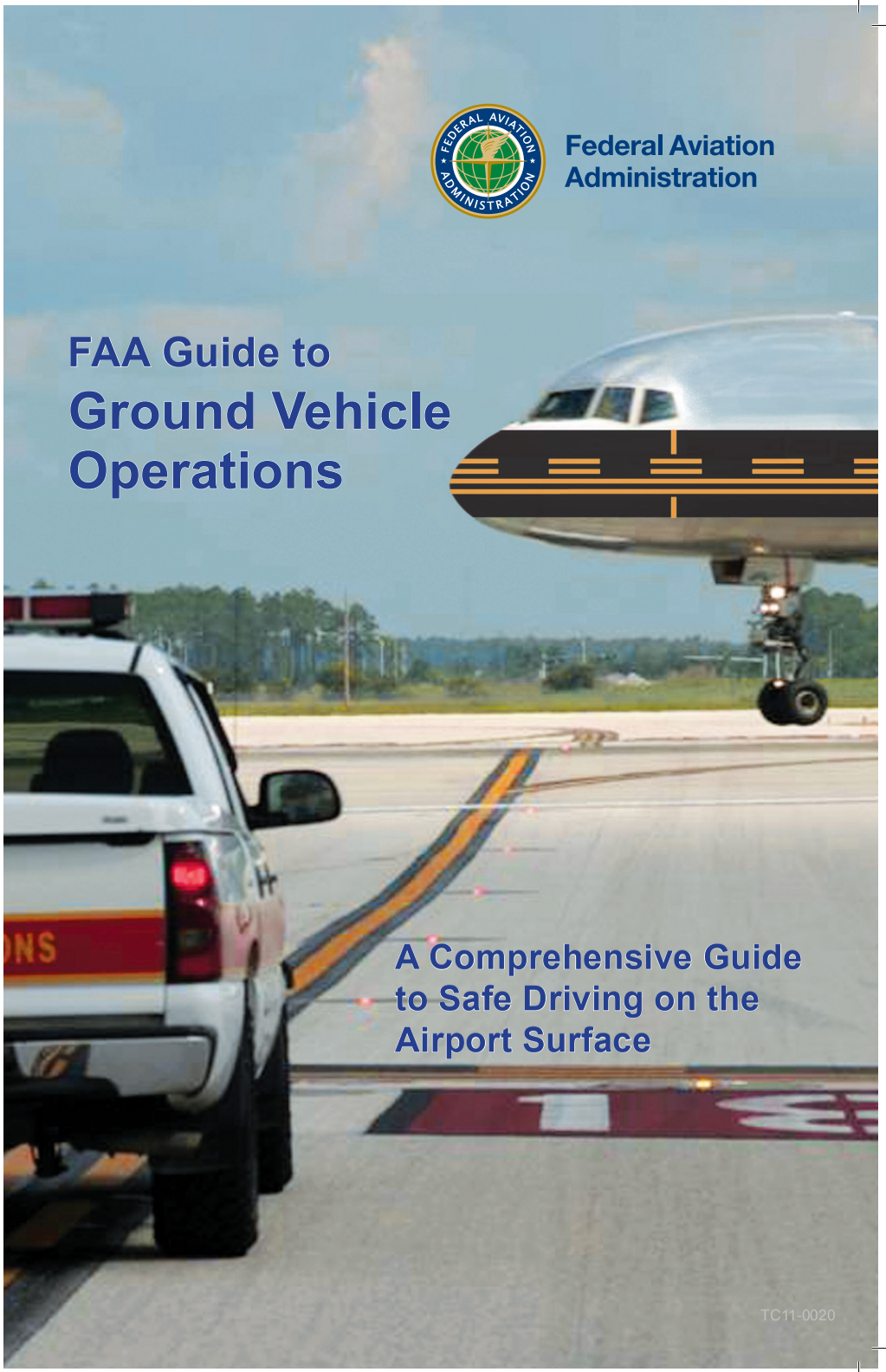
APPENDIX B

FAA GUIDE TO GROUND VEHICLE OPERATIONS


Federal Aviation
Administration
FAA Guide to
Ground Vehicle
Operations
A Comprehensive Guide
to Safe Driving on the
Airport Surface
TC11-0020

Traffic levels rise, airports expand, surface routes change, and you, the vehicle driver, are expected to understand how to safely move about the airport. Besides learning about the different movement areas on the airport, the added combination of changes in weather, time of day and amount of aircraft traffic makes the risk of error higher than ever.

Runway incursions are a serious safety concern and significantly impact safe operations at any airport. Incursions, which also can occur on taxiways although not considered runway incursions, have involved air carrier aircraft, military planes, general aviation aircraft, air traffic controllers, ground vehicles and pedestrians.

A Runway Incursion (RI) is defined as any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and takeoff of aircraft. There are three types of RIs: Operational Errors (OE), Pilot Deviations (PD) and Vehicle/Pedestrian Deviations (V/PD).

Operational Errors involve air traffic control (ATC) and Pilot Deviations typically involve an airman's mistake. A V/PD occurs when a vehicle or pedestrian has entered the runway safety area without authorization from air traffic control. Annually, V/PD's comprise approximately 20% of total runway incursions.

The information presented in this brochure is focused on helping to inform and educate vehicle drivers about the various signs, lights, markings, phraseology and other procedures utilized in an airport environment. Listed below are some basic things to remember and practice before operating a vehicle on the airport:

FAA Guide to Ground Vehicle Operations
Introduction

- ✈ Review and understand airfield signage and markings.
- ✈ Review the most up-to-date airport diagram prior to moving the vehicle. Have the airport diagram out and available for immediate reference while driving in the operational area.
- ✈ Review current airfield information for any taxiway closures, runway closures, construction activity or other surface risks.
- ✈ Ensure appropriate vehicle lights (high beams, flashers, beacons and strobes) are operational prior to driving on the airport surface. Flashers and beacons help ATC, aircrews and other operators see vehicles in the movement area, especially during periods of reduced visibility and at night.
- ✈ Use service roads whenever possible to minimize time spent on taxiways and runways.
- ✈ During radio transmissions, use proper aviation phraseology and speak in a clear, concise manner.
- ✈ Copy your clearance and review the assigned route. Read back all clearances.
- ✈ If you do not understand an instruction, clarify with ATC before proceeding.
- ✈ While driving, refrain from using cell phone, texting or engaging in unnecessary conversation.
- ✈ Get as familiar as possible with the airport's roads, taxiways and runways before driving solo on the airfield. If possible, have someone who is very familiar with the airport accompany you until you are proficient at operating on the movement area.

The ***FAA Guide to Ground Vehicle Operations*** was created for you, the driver of a tug, fuel truck, baggage cart or other airport vehicle. This guide is not intended to provide comprehensive coverage of everything there is to know about surface safety. Rather, it focuses on five areas that are most important, as well as containing additional information and a chance for you to test your overall comprehension with a quiz.

Airport Basics

Airfield Signs, Markings and Lighting

Towered Airports

Non-Towered Airports

Aviation Phraseology

Additional Information

Self-Assessment

FAA Guide to Ground Vehicle Operations
Introduction

Each section identifies safety measures and information that will help you maintain situational awareness while on the airfield. "Situational awareness" is defined as being aware of your location on the airfield and how that location relates to your destination, other vehicles and aircraft. It can be maintained consistently by:

- ✈ Understanding and following Air Traffic Control (ATC) instructions and clearances.
- ✈ Using an airport diagram.
- ✈ Knowing the meaning of the visual aids available on the airport, such as airfield markings, signs and lights.

Maintaining situational awareness will help you avoid errors that lead to runway incursions. Runway incursions are a serious safety concern and it doesn't take much to be involved in one. Incursions and collisions have included all types of commercial, military and private aircraft as well as *GROUND VEHICLES*. Some have resulted in fatalities. All employees who operate vehicles or motorized equipment on airports have key responsibilities in these safety efforts, as this guide outlines.



AIRPORT BASICS

This section outlines the basic features of any airport. There may be important unique aspects to the airport on which you drive, such as dedicated vehicle lanes, areas not visible to controllers or nonstandard airport traffic patterns. Be aware and know the rules of your airport.

Runway Safety Area

The Runway Safety Area (RSA) is an area surrounding the runway, and is measured from the runway ends and centerline. Much like the shoulder area on a highway, the runway safety area is intended for use by aircraft in emergency situations, i.e., landing short of, veering off of, or overshooting the runway, and always should be free of vehicles, equipment and pedestrians any time aircraft are taxiing, taking off or landing. When the tower is in operation, vehicles and pedestrians are required to have clearance to access these areas. During periods when the tower is not operating or at a non-towered airport, extreme caution should be used.

The RSA can be identified by a hold line, also known as a holding position marking, which is painted in yellow on taxiway surfaces and collocated with a holding position sign. The holding position sign has a red background with white characters. The actual dimensions of the RSA will vary depending on the tail height and wing span of the largest aircraft authorized to utilize the airport. Its distance from the runway centerline may extend up to 280 feet across and as much as 1,000 feet beyond the runway ends.



FAA Guide to Ground Vehicle Operations
Airport Basics

Aprons/Ramps

Aprons, also called ramps, are the areas where aircraft park, load and unload. Your work may require you to drive on an apron. In addition to watching for moving aircraft on the apron, be careful to maintain a safe distance when working around parked aircraft. Aside from nicks and dents that are expensive to repair and can affect the airworthiness of the aircraft, you could get hurt and your vehicle damaged when an aircraft starts its engine. This hazard is called jet blast or prop wash. There have been several cases where vehicles have been overturned by jet blast. Drivers should be aware of the rotating red beacon(s) located on the aircraft's tail, and sometimes on its underside. The beacon is typically illuminated in conjunction with imminent engine start.



Runway Markings are WHITE

Runways have white numbers on each end, centerline stripes down the middle and may have white lines along the edges. Runways that are served by an instrument approach will have more elaborate markings such as those shown in Figure 1.1.

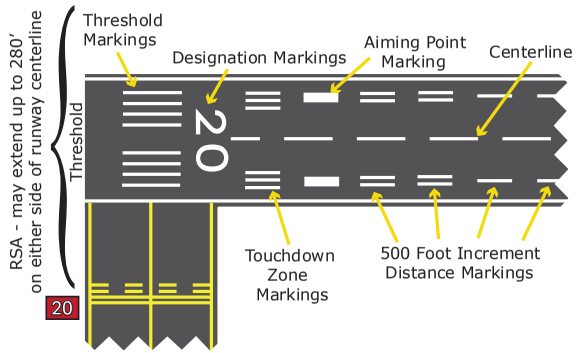


Figure 1.1 – Runway Markings (not to scale).

Taxiway Markings are Yellow

Taxiways are areas used by aircraft to get to and from the apron/ramp and the runway. Taxiways look similar to runways, but are usually not as wide. Instead of numbers, taxiways use letters or letter/number combinations for designators. See Figure 1.1

BEST PRACTICES FOR SAFE DRIVING

On the Movement Areas

- Together, runways and taxiways are known as the MOVEMENT AREAS of the airfield.
- Airport diagrams provide the layout and designations of runways and taxiways, show the location of major facilities and are essential to navigating the airfield surface. Always have a current airport diagram in your vehicle.
- If you are required to drive on or work in areas adjacent to runways, be aware that aircraft wings and engines may extend over these areas. ATC approval is typically required to operate in these areas.
- If you become uncertain of your location on the airport movement area, **STOP** and immediately contact ATC for help.

EXPLICIT RUNWAY CROSSING CLEARANCES: Never cross a holding position marking including hold lines for inactive or closed runways without explicit ATC instructions. Instructions to cross a runway will be issued one at a time. An aircraft or vehicle must have crossed the previous runway before another runway crossing is issued.

FAA Guide to Ground Vehicle Operations
Airport Basics

- Know your airfield markings, signs and lighting (as outlined in the next section). Be careful not to hit taxiway edge lights.

Around Aircraft

- Aircraft cockpit windows have a limited viewing area. It can be difficult or impossible for pilots to see vehicles and pedestrians, particularly behind the wings or under the nose of the aircraft.
- Always yield the right-of-way to moving aircraft. Do not assume the pilot will see you, especially in busy areas like aprons/ramps where pilots are busy with preflight checks.
- If a pilot is about to start the engine or the engine is running, the aircraft's red rotating beacon(s) should be turned on as well.

While Communicating with Air Traffic Control (ATC)

- Avoid distractions and focus on where other vehicles and/or aircraft are on the airfield, especially on your intended route.
- Always use standard aviation phraseology and proper communications procedures when contacting ATC in order to facilitate clear and concise communications.
- Write down taxi instructions, especially instructions that are complex. This can help reduce your vulnerability of forgetting part of the instruction.
- When in doubt, **STOP** and ask for help or clarification from ATC.

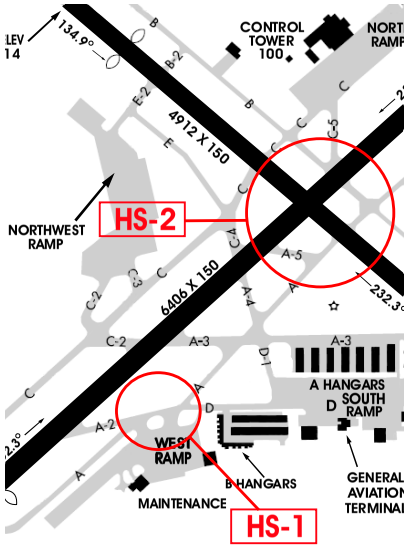
During Construction

- Extra vigilance is necessary when driving on an airport during construction. Normal driving routes may be altered, runways and taxiways may be closed, runway thresholds may be displaced or relocated and hot spots may be identified. Therefore, remember to review your expected driving route against areas of construction, especially if you are operating a rescue vehicle.

Hot Spots

- ICAO defines a hot spot as a location on an aerodrome movement area with a history or potential risk of collision or runway incursion, and where heightened attention by pilots and drivers is necessary.

- A hot spot is a runway safety related problem typically at a complex or confusing taxiway/taxiway or taxiway/runway intersection. As a vehicle driver, it is your responsibility to be familiar with these areas and use extreme caution when driving in, or near them. The airport diagram will usually, but not always point out designated hot spots. Be certain to use the most up-to-date diagram as hot spots will remain charted until such time the increased risk has been reduced or eliminated.



For more information on hot spots, refer to the Airport Diagrams chapter in the Airport Facility Directory (AFD). Also visit: www.faa.gov/airports/runway_safety/hotspots/hotspots_list

SIGNS AND MARKINGS

As a driver, it is important that you know the meanings of the signs and markings used on airports as navigational aids. Sometimes the information on the sign is also painted on the airport pavement. An overview of some of the most common signs and markings is described on the following pages. For more detailed information, see the FAA Aeronautical Information Manual (AIM).

Runway Holding Position Marking

Painted yellow on the taxiway pavement and collocated with the holding position sign, this is an airport version of a stop sign. As you approach the runway, you will see two solid yellow lines with two dashed lines. Prior to reaching the solid lines, it is imperative that you **STOP** and do not cross the lines until you have clearance from ATC. When the tower is closed or you are operating at a non-towered airport, you may cross only when the runway is clear of aircraft, and then cross with extreme caution. Always look both ways before you cross any runway!



When exiting a runway, you will see these same markings, except your vehicle will be approaching the dashed lines. Your vehicle must completely cross both the dashed and the solid lines to be clear of the runway.

Runway Holding Position Sign

May be seen as a sign and/or painted on the pavement, it has white characters on a red background. This sign/marking is collocated with the surface painted holding position markings on taxiway and runway intersections.



Do not drive past this sign or marking without a clearance from ATC. Doing so without clearance from the tower poses a hazard to yourself and others. When the tower is closed or you are operating at a non-towered airport, you may cross only when the runway is clear of aircraft, and then you should proceed with extreme caution.

Location Signs and Markings Black background with yellow letters and/or numbers. These signs and surface-painted markings indicate your location. *REMEMBER: BLACK SQUARE, YOU'RE THERE. (See Figure 2.1)*



Runway **Taxiway**

Taxiway Direction Signs and Markings These signs and markings with a yellow background and black characters indicate the direction toward a different taxiway leading off a runway or out of an intersection. *YELLOW ARRAY, LEADS THE WAY. (See Figures 2.1 and 2.2)*



ILS Critical Area Holding Position Signs and Markings May be seen as a sign (as shown here), and/or as a painted surface marking. These are utilized to show the boundary of the runway's ILS critical area. Hold short of this area when instructed to by ATC.



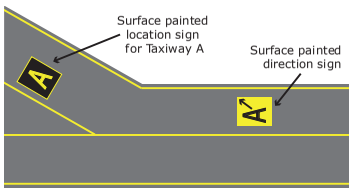


Figure 2.1 – Surface painted location and direction markings.

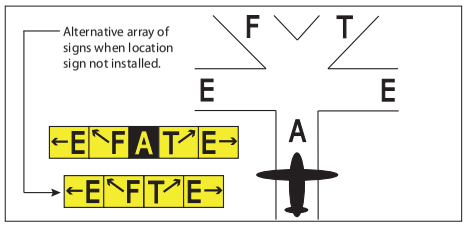
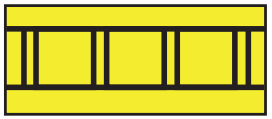


Figure 2.2 – Examples of taxiway sign arrays with and without current location on Taxiway Alpha.

Holding position markings for ILS critical areas appear on the pavement as a yellow horizontal ladder and extend across the width of the taxiway. An ILS holding position sign with white characters on a red background is typically situated adjacent to these ILS holding position markings. Hold short of this area when instructed to by ATC.



ILS Boundary Sign This sign identifies the boundary of the ILS critical area for pilots and vehicle operators exiting the runway. Pilots and vehicle operators must proceed beyond this sign to clear the ILS critical area when instructed to do so by ATC.



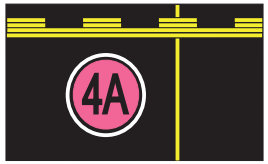
Non-Movement Area Boundary Markings
A single solid line along with single dashed yellow lines, this marking divides the movement and non-movement areas on the airfield. When you are positioned on the solid line side of the marking, or the non-movement area, ATC clearance is required for you to drive across into the movement area.



Runway Safety Area Boundary Sign Yellow sign with black markings. Visible only when exiting the runway. The sign is typically used on towered airports where a controller commonly requests a pilot to report clear of a runway, which occurs when this sign is passed.



Geographic Position Markings Pink with black and white. Some large airports use these markings in low visibility conditions as position points on the taxiway.



Helicopter Landing Area Marking Some airports have a designated helicopter landing pad. This area is depicted with an "H" inside of a square. Be especially careful when you drive near helipads. Look up for landing helicopters. As is the case for aircraft, yield the right-of-way to a helicopter.





Destination Signs Yellow background with black letters. The taxiways at your airport may have these signs next to them to identify the direction to a specific destination, e.g. parking area.

Enhanced Taxiway Centerlines A dashed line painted on each side of the existing taxiway centerline extending up to 150' from the holding position marking. This is to further alert aircraft and vehicles that they are approaching a runway safety area.



Relocated Threshold A point on the runway other than the beginning of the full strength pavement, which is not available for the landing or takeoff of aircraft. Thus, a relocated threshold marks the end of the runway. The abandoned runway area may or may not be available for taxiing. Possible causes for threshold relocation include construction or other airport maintenance.



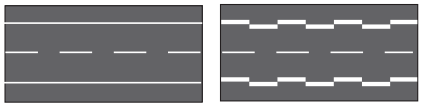
FAA Guide to Ground Vehicle Operations
Airfield Signs, Markings and Lighting

Chevrons Large yellow painted arrows that identify paved blast pads, stop areas, and EMAS (engineered materials arresting systems). A minimum of two chevrons will be painted and aligned with the runway end. The pavement marked by chevrons is not to be used, unless in conjunction with an EMAS when it may be used to help stop an aircraft overrun.



Aprons/Ramps

Aprons/Ramps have markings for aircraft parking and tie-downs. Some airport aprons/ramps also have special markings for vehicle operations. If there are vehicle or roadway markings, you should always drive your vehicle within those marked areas. In addition, taxiways may be marked on the apron to show aircraft routes to gates and parking areas.



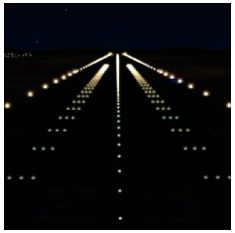
Examples of vehicle surface markings; roadways bounded by "zipper" markings are also used by aircraft.

When driving near navigational aids, stay out of the protected areas around them to avoid interfering with their signals. If a road or taxiway is close enough to an ILS to affect it, there should be an ILS holding position sign like the one depicted on page 12.

LIGHTING

There are many different lighting combinations that may be located on some airports, especially where aircraft operations are conducted in lower visibility ranges.

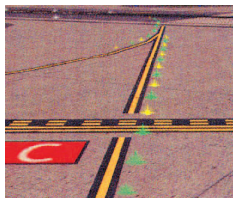
Runway Edge and Centerline Lights Runway edge lights are clear/white, except on instrument runways where yellow replaces white on the last 2,000 feet or half the runway length, whichever is less, to form a caution zone for landings. Centerline lights alternate red/white starting 3,000 feet from the end, and are solid red starting 1,000 feet from the end.



Taxiway Edge Lights or Reflectors are blue in color and used to outline the edges of taxiways during periods of darkness or restricted visibility conditions.



FAA Guide to Ground Vehicle Operations
Airfield Signs, Markings and Lighting



Taxiway Centerline Lights or Reflectors are green except for the lead-on and lead-off lights, which alternate yellow and green to indicate that you are entering or leaving the runway environment.

Runway Guard Lights are flashing yellow lights that can be in-pavement or elevated and are used to help identify a runway holding position.



In-Pavement Runway Guard Light

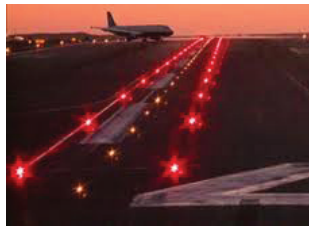


Elevated Runway Guard Light

Runway Status Lights (RWSL) provide a visual warning to vehicle drivers and pilots that the runway is not safe to enter. RWSL consist of the following warning signals: runway entrance lights (REL) and runway intersection lights (RIL) for vehicles and aircraft crossing or entering a runway from intersecting taxiways or runways, and takeoff hold lights (THL) for aircraft awaiting takeoff. The system will be operational at 23 of the nation's major airports by the end of 2015.



Runway Entrance Lights



Takeoff Hold Lights

VEHICLE LIGHT GUN SIGNALS

Air traffic controllers have a backup system for communicating if radios fail. Controllers use a light gun that flashes different colors to tell pilots or vehicle drivers what to do. Even a failed radio is not an excuse for proceeding without a proper clearance. If you are ever working on a runway or taxiway and radio communication fails, you should:

- Turn your vehicle toward the tower.
- Flash your headlights.
- Wait for the controller to signal you with the light gun.
- Be patient! If the controller's attention is directed toward another part of the airport, it may take a few minutes.
- If still waiting, try a different radio frequency or call from a cell phone. Store the tower phone number in your cell phone for emergencies.

Light Gun Signals

Steady Green
Cleared to go; OK to cross runway or taxiway.

Flashing Green
Cleared to taxi. **DOES NOT APPLY TO VEHICLES!**

Alternating Red/Green
Exercise extreme caution. This warning signal can be followed by another light signal as circumstances permit.

Steady Red
STOP!

Flashing Red
Clear the taxiway or runway IMMEDIATELY!

Flashing White
Return to starting point on airport.

TOWERED AIRPORTS



If your airport has an air traffic control (ATC) tower, it is a towered airport whenever the tower is operating. Pilots and vehicle drivers wanting to enter a runway or taxiway (movement areas) must first get permission from the tower.

As an operator of a vehicle, you must have authorization from ATC before you enter any part of the airport movement area. When the tower is in operation, you must utilize a two-way radio for communicating with and receiving instructions from air traffic control.

Radio Communications Procedures

- Ensure the availability of a radio capable of transmitting and receiving on the airport's ground control frequency. Perform a "radio check" to assess your radio's operability at the start of each shift.
- Each vehicle should be designated with an identifying call sign, and be marked and lighted appropriately.
- Know the standard Air Traffic Control (ATC) phraseology and never use Citizen's Band (CB) lingo or law enforcement 'ten' codes.
- Think about what you are going to say before calling the controller. Know your call sign, location on the airfield and where you intend to go.

✈ At most facilities, the above information can be included on the initial call as in the following example:

Driver:	**Cincinnati ground, vehicle one at gate four would like to cross runway one eight right at taxiway alpha and proceed to the VOR.**
Controllers:	**Vehicle one, Cincinnati ground, proceed via alpha, hold short of runway one eight right.**
Driver:	**Roger, vehicle one, proceeding via alpha, will hold short of runway one eight right.**

✈ At larger facilities or when the controller is busy, it is best to simply call the tower with your identification and wait for the controller's response as in the following:

Driver:	**Cincinnati ground, vehicle one.**
	...time elapses...
Controllers:	**Vehicle one, Cincinnati ground.**
Driver:	**Vehicle one at gate four would like to cross runway one eight right at taxiway alpha and proceed to the VOR.**

✈ Read back of all runway holding instructions is required and must include the phrase "Hold Short", the runway's identifying number and your call sign.

FAA Guide to Ground Vehicle Operations
Towered Airports



The "Aviation Terminology" section on page 25 lists air traffic control terms and phrases with definitions. You should know what they mean before driving on an airfield.

With a little practice, radio communications are not difficult. If you are ever unsure about what the controller said, or if you don't understand an instruction, ***ask the controller to repeat the communication by transmitting "SAY AGAIN".***

A controller, even one who is extremely busy, would rather repeat and explain instructions than have a misunderstanding lead to a runway incursion. Don't proceed thinking that the instructions will become clear once you drive a little farther.

Advance Coordination

When you contact the tower before an operation, you will receive instructions on how to proceed. Be sure you understand your route, stopping points and holding positions. If you are not sure where you are going and would like turn-by-turn directions, ask the controller for "progressive" taxi instructions.

Use extreme caution when you hear the phraseology "go ahead". It is only meant for you to proceed with your message and is not to be used for any other purpose. It **NEVER** means to proceed in moving about, or to drive on the airfield.

NON-TOWERED AIRPORTS

When the control tower is closed or if there is no tower, the airport is referred to as non-towered. At a non-towered airport, you do not need controller permission before entering a runway or taxiway. Below are some best practices for operating on a non-towered airport:

- When you approach the runways and taxiways, STOP, LOOK both ways, and LISTEN for aircraft that are landing or taking off. Vehicle windows should be open to do this properly.
- Alert others when you are using a taxiway or runway by always making an announcement on the radio before you enter. Be specific with your location and intentions.
- Always yield the right-of-way to taxiing aircraft and give them plenty of room. If an aircraft is headed toward you on the same taxiway, move out of the aircraft's way.
- Always carry a radio tuned to the airport's Common Traffic Advisory Frequency (CTAF) or UNICOM.
- If an aircraft is about to land on a runway that you need to cross, stop well clear of the runway. Continue to yield to the aircraft until it has landed and taxied off of the runway.
- Be aware that some aircraft at non-towered airports are not equipped with radios.



FAA Guide to Ground Vehicle Operations
Non-Towered Airports

- Before you cross a runway, ensure that no potentially conflicting aircraft are taxiing, landing or taking off. Be aware of aircraft at non-towered airports that frequently make touch-and-go landings (immediately after landing, full power is applied and the aircraft takes off again).
- If your vehicle has a rotating beacon, be sure to turn it on anytime you are on the airport surface. Turn on headlights as well, being careful not to blind any pilots in the area.

Example of a self-announcement by driver on UNICOM or CTAF:

Driver: Millville traffic. Ops one vehicle entering runway 28 at approach end and proceeding full length to the end of the runway.

Traffic Patterns

Aircraft approaching a runway for landing usually follow a standard landing pattern. Most runways are positioned so planes will take off and land into the wind. In most cases, the pattern is a rectangular box with the pilot making all turns to the left, as shown in Figure 3.1. In a few cases, airports will use right traffic patterns. However, don't assume all aircraft will always be flying in the standard pattern - it is not required, only recommended - so keep a visual look out to the sky just

Pilot: Millville traffic. Cherokee two zero niner zero whiskey, entering left downwind runway one zero, Millville.

in case a pilot decides to fly a 'straight in' approach and doesn't enter the standard traffic pattern. Similarly, if a pilot announces "short final", expect that aircraft's landing to be imminent.

Pilots announce their position on the Common Traffic Advisory Frequency (CTAF)/Unicom using the names of the segments of the traffic pattern: Upwind, Crosswind, Downwind, Base and Final. See Figure 3.1

Extra vigilance is essential at non-towered airports, or when the control tower is not operating. While there may be CTAF or UNICOM frequencies available, pilots are not required to communicate or announce their position in the traffic pattern or on the surface. As a result, a driver can be lulled into complacency because the airport is not very busy. Nevertheless, always remain alert for the unexpected, even when aircraft traffic levels are light.

Another factor involves the runway angle or slope, which makes it difficult or impossible to see the entire length of the runway. As a result, an aircraft can suddenly appear on a runway when you are crossing. Generally, it is good practice to cross runways at their ends. If one is available, a perimeter road or taxiway is the recommended route for crossing a runway at a non-towered airfield.

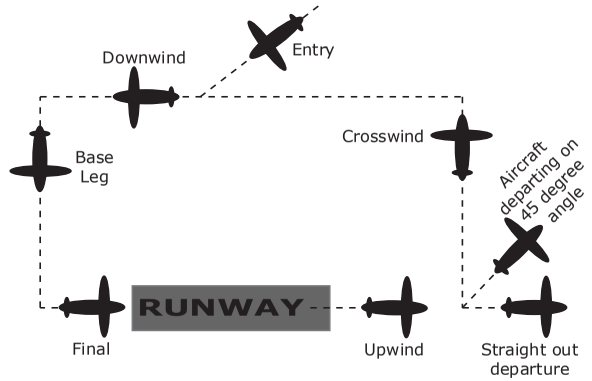


Figure 3.1 – Diagram of airport traffic pattern operations.

AVIATION TERMINOLOGY

This section contains a glossary of terms commonly used in ground or surface operations. For a complete listing of all ATC phraseology, consult the FAA Aeronautical Information Manual (AIM), which can be accessed at: http://www.faa.gov/air_traffic/publications/atpubs/aim/

Acknowledge - Let me know that you have received and understood this message.

Advise Intentions - Tell me what you plan to do.

Affirmative - Yes.

Confirm - My understanding of your transmission is _____ : Is that correct?

Correction - An error has been made in the transmission and the correct version follows.

Final - Commonly used to mean that an aircraft is on the final approach course or is aligned with a landing area.

Go Ahead - Proceed with your message. Not to be used for any other purpose.

Hold or Hold Position - Stay in place where you are currently located.

Hold Short of... - Proceed to, but hold short of a specific point and maintain appropriate distance to avoid interfering with other traffic. With respect to runways, always stop at the runway

holding position marking unless otherwise directed by ATC. A read back confirmation to ATC is required anytime a "hold short" instruction is given.

Line Up and Wait (LUAW) - This phrase has replaced the "Position and Hold" instruction by a controller to direct a pilot to enter the runway and await takeoff clearance.

Negative - No; Permission not granted; That is not correct.

Proceed - You are authorized to begin or continue moving.

Read Back - Repeat my message back to me.

Roger - I have received your last transmission; but not to be used to answer a question requiring a “yes” or “no” response (see Affirmative, Negative).

Say Again - Repeat what you just said.

Stand By - Wait for further information, as in “stand by for clearance”.

Unable - Indicates inability to comply with a specific instruction, request or clearance.

Verify - Request confirmation of information.

Without Delay - Follow instructions expeditiously, specifically and safely.

Wilco - I have received your message, understand it and will comply.

FAA Guide to Ground Vehicle Operations
Aviation Phraseology

AVIATION PHONETICS

Because some letters and numbers may sound similar, the following list will reduce confusion. For example, Taxiway B would be referred to as Taxiway Bravo, and Runway 29 is Runway Two Niner. As a vehicle driver, commit this phonetic alphabet to memory.

A Alpha	M Mike	Y Yankee
B Bravo	N November	Z Zulu
C Charlie	O Oscar	0 Zero
D Delta	P Papa	1 One
E Echo	Q Quebec	2 Two
F Foxtrot	R Romeo	3 Three
G Golf	S Sierra	4 Four
H Hotel	T Tango	5 Five
I India	U Uniform	6 Six
J Juliet	V Victor	7 Seven
K Kilo	W Whiskey	8 Eight
L Lima	X X-ray	9 Niner

ADDITIONAL INFORMATION

In addition to all the information provided to you in this publication, there are other things to be aware of while operating a vehicle on the airport.

Foreign Object Debris (FOD)

Trash or rocks sucked into a jet engine can shred parts of the engine in seconds. A rock caught by a propeller can damage the propeller, as well as become a deadly projectile. Make your airport a safer place by putting all trash in a covered container that won't be blown over. Get in the habit of picking up any trash and debris that you notice while driving around the airport. Avoid tracking mud and rocks onto taxiway and runway surfaces.



FAA Guide to Ground Vehicle Operations
Additional Information



Reporting Accidents

If you are involved in an accident, report it immediately. If a collision occurred between you and an aircraft, it's critical that the aircraft not be flown until the damage can be inspected and repaired.

Aircraft Rescue and Fire Fighting (ARFF)

Just as when you are in highway traffic, if you see an airport emergency vehicle with its lights on, do not proceed until it has cleared. Always stay alert for any type of emergency activity and accompanying vehicles.

All vehicles operating at a towered airport, including ARFF and police, are required to receive explicit runway crossing instructions from ATC. This applies to all runways encountered: active, inactive and closed, regardless of the type of emergency!

Security

Depending on the type of airport you work on, the security system may be as simple as a fence or it may include items as complicated as computer controlled automatic gates with television screen monitors. At large air carrier airports, security will be provided by the airport's police department or local law enforcement. At smaller airports, the airport manager or the fixed-base operator may be responsible for security.

If you see a gate left open, close it, and then report it to the airport security office. Never let someone follow you through a gate. If you see a strange person or vehicle that appears lost, stop and offer assistance. Or, if your airport has a security department, contact them for help. If you work at an air carrier airport, the airport manager has a complete security plan of the airport with detailed procedures for specific situations. Be sure you know what your responsibilities are and ask your supervisor if there is anything about which you are unsure.



FAA Guide to Ground Vehicle Operations
Additional Information

Nighttime or Bad Weather Driving

If you are required to drive on the airport at night, on your first couple of trips take someone along who is very familiar with the airfield. Things look different at night. The same applies if you are driving in bad weather. In both cases, allow yourself extra travel time and drive slower than you would normally. Remember, your vehicle's rotating beacon and headlights will provide additional visibility and help to identify your vehicle to others.

During winter conditions, signs and markings may be obscured by snow. Snow equipment may be operating in low visibility conditions and may not see your vehicle. Use caution; remember there are extra risks present.



This guide has covered the basics of how to safely drive on an airport. Remember to be courteous to your fellow drivers, pay attention, drive carefully, follow instructions, avoid distractions, obey the rules and regulations and set a good example. Eventually, with experience, you will attain a comfortable working knowledge of how to safely move around.

Conclusion

If there is something you don't understand, seek clarification before proceeding, especially when you are at a towered airport with an operating ATC tower. With experience, you will attain a comfortable working knowledge of moving about the airport surface safely. Always maintain situational awareness and contact ATC if you are unsure, lost or unclear of an instruction.

For more information:

Office of Runway Safety
www.faa.gov/go/runwaysafety

Aeronautical Information Manual (AIM)
http://www.faa.gov/air_traffic/publications/atpubs/aim/

Aeronautical Navigation Services Group (AeroNav) Airport Diagrams
www.faa.gov/airports/runway_safety/diagrams

Airport Security - TSA Part 1542
www.tsa.gov/research/laws/regs/editorial_1785.shtm

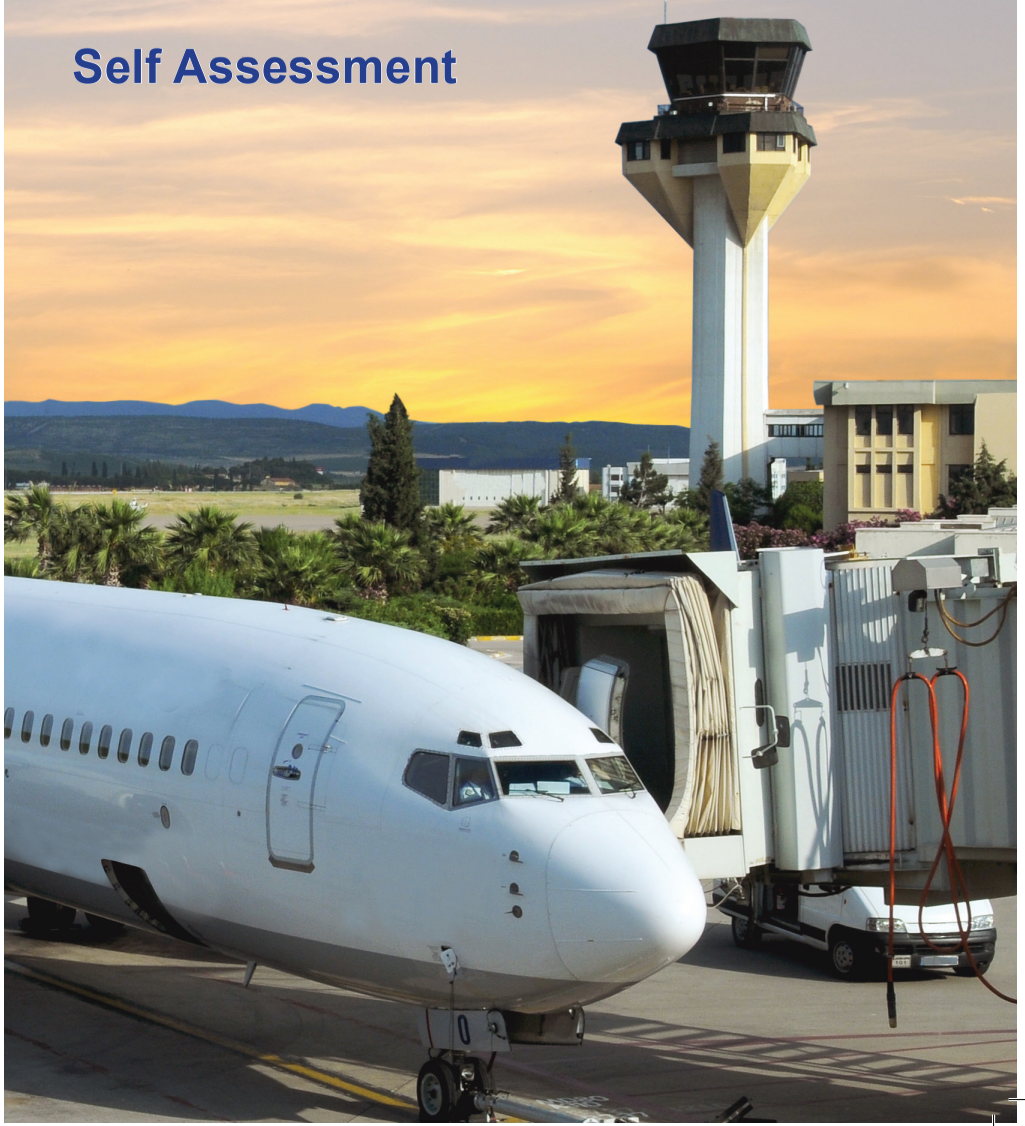
Runway Safety - Vehicle Drivers
www.faa.gov/airports/runway_safety/vehicle

Runway Safety - Hot Spots List
www.faa.gov/airports/runway_safety/hotspots/hotspots_list

Federal Aviation Administration

FAA Guide to Ground Vehicle Operations

Self Assessment



1. A controller who says, "Go ahead" means:

A. Proceed as requested.

B. Continue straight ahead.

C. State your message.

2. The red and white sign next to the taxiway is called a runway holding position sign. This sign indicates:



A. Runway 4/22 is ahead. This sign is collocated with surface painted holding position markings and indicates that you must have clearance from ATC to proceed.

B. That you should follow the sign to get to the parking apron.

C. Nothing to me, it's only there for the pilot's use.

3. Two solid yellow lines with two dashed yellow lines represent the marking for a runway holding position. All aircraft, vehicles and pedestrians approaching the runway are required to have a clearance from ATC before proceeding beyond the two solid yellow lines.



A. True

B. False

FAA Guide to Ground Vehicle Operations
Self Assessment

4. Runway markings are:

A. White

B. Yellow

C. Red

5. Taxiway markings are:

A. White

B. Yellow

C. Red

6. As you are on your way to a construction site on the airfield, you are approaching a runway and have not received a specific instruction to cross the runway. What will you do?

A. Drive to the edge of the runway to see if it is clear of landing or departing aircraft, and then proceed.

B. Stop prior to crossing the holding position marking and contact ATC for clearance.

C. Use your cell phone to call someone at the construction site and ask if it is ok to cross the runway.

D. Nothing, since vehicle drivers are not required to obtain clearance to cross runways.

7. You are driving in a vehicle designated OPS-1 awaiting clearance to cross runway 19, and you hear ATC clear OPS-4 across runway 19. What will you do?

A. Proceed across runway 19 since you know that ATC meant to say "OPS-1".

B. Contact OPS-4 on the radio to advise they are cleared to cross runway 19.

C. Call ATC to clarify if the clearance to cross runway 19 was for OPS-1.

D. Turn around and return to Operations because your shift is ending.

8. A Runway Incursion is defined as any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and takeoff of aircraft.

A. True

B. False

9. What does "Explicit Runway Crossing Clearance" mean?

A. A "taxi to" clearance will allow you to cross multiple runways.

B. Typically, instructions to cross a runway will be issued individually for each runway encountered.

C. It replaces "Position and Hold".

D. It's a trick question, no such instruction exists.

FAA Guide to Ground Vehicle Operations
Self Assessment

10. On a runway you see this sign. What does it mean?



A. You are approaching runway 22.

B. You are on runway 22.

C. It is an informational sign only.

D. There are 2,200 feet remaining to the end of the runway.

11. At night what color lights/reflectors mark taxiways?

A. White

B. Blue

C. Red

D. Yellow

12. When driving in the area immediately behind a large jet aircraft with its engines running, a driver should:

A. Not be concerned about danger from the jet blast because a typical car/van is too heavy to be affected.

B. Stop or stay well back, and do not proceed too closely behind the aircraft.

C. Cross the area of jet blast at a perpendicular angle to minimize the hazard.

D. None of the above.

13. Unless contrary instructions have been received from air traffic control, a vehicle should always yield to an aircraft.

A. True

B. False

14. This sign on a taxiway indicates:



A. You must have clearance by ATC to taxi past these signs.
B. Distance to FBO is 2,333 feet to the right.
C. FBO is southeast and runway 22/33 is east of your location.
D. The direction towards location of the FBO & runways 22/33.

15. If, at a non-towered airport, you see an aircraft approaching the runway to land when you are waiting to cross the same runway, you should:

A. Hold short of the runway until the aircraft is past the point at which you will cross the runway, then proceed when it is safe.
B. Proceed across if the aircraft has not announced its position on the CTAF or UNICOM frequency.
C. Contact the pilot by radio and see if he or she intends to make a touch and go landing.
D. Flash your headlights at the aircraft.

16. You are driving at a non-towered airport. An aircraft that has announced its position on the UNICOM frequency as 'downwind' is flying:

A. Perpendicular to the runway after initial climb and turn.
B. Parallel to the runway in the direction opposite landing.
C. An approach to land with the wind instead of into the wind.
D. Any of the above.

FAA Guide to Ground Vehicle Operations
Self Assessment

17. If an air traffic controller directs you to do something that you believe is unsafe:

A. You must comply or face disciplinary action.
B. You should comply and then call your supervisor as soon as possible.
C. You should ask the controller for clarification before complying with the instruction.
D. Flash your headlights and then proceed.

18. The yellow painted marking at the beginning of this runway indicates:



A. The pavement can be used for takeoff only.
B. The pavement can be used for landing only.
C. The runway threshold has been relocated.
D. Does not apply to vehicles.

19. This sign is located on a taxiway. What does it mean?



A. You must have clearance from ATC to taxi past this sign.

B. Taxiway Bravo is west of your location on the airport.

C. It is a directional sign informing you that taxiway Bravo is the next left turn.

D. None of the above.

20. If radio contact is lost and the tower signals with a flashing red light, I should:

A. Stop.

B. Clear the runway or taxiway.

C. Ignore the signal.

D. Return to my point of origin on the airport.

21. You are driving on a non-towered airport. An aircraft that has announced its position on the UNICOM frequency as "base leg" is flying.

A. Perpendicular to the runway after initial climb and turn.

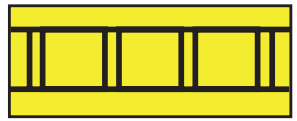
B. Parallel to the runway in the direction opposite landing.

C. Perpendicular to the runway about to turn final and land.

D. None of the above.

FAA Guide to Ground Vehicle Operations
Self Assessment

22. What does this sign indicate?



A. This sign next to a taxiway identifies the ILS Critical Area, which you must drive beyond when exiting the runway as directed by ATC.

B. You should be directed by ATC before proceeding beyond this sign.

C. Indicates that you are at a runway threshold.

D. Both A and B.

23. What do the chevrons at the end of a runway indicate?



A. The pavement is to be used for takeoff only.

B. The pavement is to be used for landing only.

C. The pavement is not to be used.

D. Indicates the current wind direction.

24. What is the procedure when you approach these painted markings from the solid line side?



A. Proceed with caution.

B. No permission needed prior to crossing.

C. You must always have permission from air traffic control prior to crossing.

D. No procedure required.

25. What does this surface painted marking mean?



A. Since it is a single solid & single dashed line, it does not apply to ground vehicles.

B. Divides movement area from non-movement area; crossing solid line requires ATC authorization.

C. It defines the taxiway edge.

D. You can pass other vehicles when you are on the dashed side.

1.	**C**	**16.**	**B**
2.	**A**	**17.**	**C**
3.	**A**	**18.**	**C**
4.	**A**	**19.**	**C**
5.	**B**	**20.**	**B**
6.	**B**	**21.**	**C**
7.	**C**	**22.**	**D**
8.	**A**	**23.**	**C**
9.	**B**	**24.**	**C**
10.	**B**	**25.**	**B**
11.	**B**		
12.	**B**		
13.	**A**		
14.	**D**		
15.	**A**		

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

ADDENDUM NUMBER 2

Project Number 62230566

Project Title Taxiway E and Taxiway J Rehabilitation

ISSUE DATE: **March 9, 2023**

Bidders are hereby notified that the Bidding and Contract Documents for the above project, for which Bids are to be received on **March 21, 2023**, are amended as follows:

Information to Bidders The following is provided to Bidders for information only:

1. The Pre-Bid Conference Meeting Minutes, Sign-In List, and Presentation are attached.

2. The Contractor shall be familiar with the airport security control procedures and access badge requirements outlined in front end specification section 011500. The Contractor shall be prepared to submit applications for personnel to have AOA access/ badges immediately due to the time required for processing applications to be prepared for a June construction Notice to Proceed (NTP). The Contractor shall coordinate with the Aviation Department and Project Manager, as necessary.

NOTE: Bidders must acknowledge receipt of this Addendum by listing the number and date, where provided, on the Bid Form - Document 00410.

PRE-BID CONFERENCE AGENDA

Project No. 62230566 - Taxiway E and Taxiway J Rehab

Location: Room 110 601 Brasilia Ave., Kansas City MO

Date: March 7, 2023 Time: 10:00AM

INTRODUCTIONS

A. City Representatives:
   (1) Project Manager: Mallie Koehler Hare, - (816) 243-3037
   E-Mail: Mallie.Koehler@kcmo.org
   (2) Contract Administrator: Sara Hurst – (816) 243-3052
   E-mail: Sara.Hurst@kcmo.org
   (3) Jade Liska, Deputy Director, Planning & Engineering
   E-mail: Jade.Liska@kcmo.org
   (4) Prevailing Wage Compliance Representative: Valerie Johnson – 816.513.1406
   E-mail: Valerie.Johnson@kcmo.org
   (5) CREO-KC M/WBE Program Rep: Andy Adkins – 816.513.1814
   E-mail: Andy.Adkins@kcmo.org
   (6) City Workforce Compliance Valerie Johnson – 816.513.1406
   E-mail: Valerie.Johnson@kcmo.org
   (7) Aviation Department DBE Program Coordinator: Andy Adkins – 816.513.1814
   E-mail: Andy.Adkins@kcmo.org

B. DESIGN PROFESSIONAL Representatives: HNTB

   Project Manager: Lynette Mellett, P.E. – (913) 488-1079
   E-mail: lmellett@hntb.com

   Project Engineer: Matt Walsh, P.E. – (312) 798-0253
   E-mail: mwalsh@hntb.com

PRESENTATIONS

BID AND CONTRACT COMPLIANCE:

A. Copies of the sign-in sheet will be available after the Pre-Bid Meeting.

B. Bid Form Requirements: Bidder must use forms provided. Any bid containing modifications, deviations, riders or qualifications will be rejected as non-responsive. Electronic versions are available.

C. Bid Security Requirements: All Bids submitted must be accompanied by a Bid deposit in the amount of five percent (5%) of the base Bid.
   - Refer to Section 00210 Instructions to Bidders, Paragraph 6 for approved bid security requirements.
   - The Bid Bond must be on the form provided in the contract documents.

D. DBE Goals: 22.35%

Approved goals apply to Base Bid.

E. Submit With Bid:

1. Form 00410 - Construction Bid Form Contract – Acceptance of Bid, which includes the Affidavit of Intended Utilization
2. Form 00410.01 – Experience Reference Form
3. Form 00410.02 - Buy America Certification form for Non-Building projects or Equipment.
4. Form 00412 - Unit Prices
5. Form 00413 – Allowance Form if needed.
6. Form 00430 - Bid Bond
7. Form 00435 - Affirmative Action Program
8. Form 00450 - Utilization Plan/Request for Waiver

   All firms must be currently certified by an approved certifying agency in the State of Missouri under the Missouri Regional Certification Committee (MRCC) Unified Certification Program (UCP). The name of the UCP, period of certification and certified scopes of work must appear on the certificate. Only scopes on the certificate can be counted toward the DBE goal.

   The DBE directories can be found at:

   http://contribute.modot.mo.gov/business/contractor_resources/External_Civil_Rights/mrcc.htm

   http://www.ksdot.org/divadmin/civilrights/

   https://kcmohrd.mwdbe.com/FrontEnd/VendorSearchPublic.asp?TN=kcmohrd&XID=186

   Contact Andy Adkins, DBE Program Coordinator, at 816.513.1814 for assistance.

   If Contractor submits a Request for Waiver, they must also submit their Good Faith Efforts to meet the Goals. Follow Sec. 3-441. - Standards to Determine Good Faith Efforts in order to submit your Good Faith Efforts. The link to get to the Standards to Determine Good Faith Efforts is below.

   https://library.municode.com/mo/kansas_city/codes/code_of_ordinances?nodeId=PTIICOOR_CH3COLE_ARTIVCOPRRE_DIV2MIWOBUENMWB_S3-441STDEGOFAEF

9. Form 00450.01 - Intent to Subcontract Letter from all DBE subcontractors
10. Form 00465 -Timetable for DBE Utilization
11. Form 00490 – Pre-Contract Bidders Certification
12. Certificate of Good Standing
13. MCI Bidder's List for prime contractor and every subcontractor who submitted bids or quotes to the prime.
14. 00800.03 Certification that Contractor is not Excluded from State or Federal Programs form. (Note: The Prime Contractor is responsible for all subcontractors being cleared prior to beginning work on the contract).

F. In order to remain responsive, **submit within 48 Hours After Bid Opening**:

1. Form 00485.03 CREO KC Employee Identification Report Form.
2. Form 00485.03 Affidavit of Training

G. Documents Submitted when requested by the City: In the event the apparent successful Bidder has not met or exceeded the DBE goals for this contract, said Bidder will submit the required documentation of its good faith efforts to meet the DBE goals.

H. Prevailing Wage requirements. Current state and federal wage orders are included in the contract documents. In case of a conflict between the state and federal wage rates, the higher rate shall apply.

I. Post Contract Award Requirements: Federal goals for the contractor's aggregate workforce in each trade on all construction work in the metropolitan area are 12.7% minority and 6.9% women.

GENERAL REQUIREMENTS: Mallie Koehler Hare (KCAD)

Bid Date/Time: March 21, 2023 at 2:00PM
601 Brasilia Avenue
Kansas City, Missouri 64153

Bid Structure: Unit Prices

Contract Times: 155 Calendar Days
Phase 1 – 66 Calendar Days
Phase 2 – 44 Calendar Days
Phase 3 – 45 Calendar Days

Liquidated Damages: $2,000/ Calendar Day

Addendum: Technical questions must be submitted in writing no later than 5:00 pm, March 10, 2023, c/o Mallie Koehler Hare. Addendum will be issued on or about March 15, 2023.
Note: Compliance-related questions may be submitted at any time.

TECHNICAL REQUIREMENTS: HNTB

Project Description/Scope of Work

The project consists primarily of a concrete surface reconstruction with Taxiway E-4 and E-5 being previously rehabilitated in asphalt. The taxiway shoulders consist of asphalt. Pavement repairs include top surface concrete reconstruction and asphalt mill and overlay. Following the top surface demolition, lean concrete base repair and crack repair will be performed as required per the RPR and specifications. The Contractor shall note that the concrete surface removal and reconstruction is variable ±17". The Contractor is responsible for reviewing the Geotechnical Report and proposed plan, profile, and grading plans within the Contract documents.

Construction Phases

The project will be divided into three work areas:

- Work Area A: North of Runway 9-27 (110 days)
  - Requires flagger to cross active Taxiway F at Taxiway E-5.
- Work Area B: South of Runway 9-27 (89 days)
  - Requires flagger to cross active Taxiway F at Taxiway E-6.
  - To access Work Area B, there is a significant drainage ditch west of Taxiway F that will require significant modifications to construct a temporary haul route.
- Work Area C: Taxiway J between Taxiway C and D (45 days)
  - Requires flagger to cross active Taxiway D at Ottawa Avenue.

Haul routes along Ottawa Avenue may require coordination with concurrent projects. The Contractor shall assume the Project will utilize the haul routes and staging areas on the plans. The KCAD reserves the right to alter these routes based on concurrent projects on the airfield and coordination with airport operations.

The three work areas will be divided into three phases:

- Phase 1: Work Area A (66 calendar days)
- Phase 2: Work Area A and B (44 calendar days)
- Phase 3: Work Area B and C (45 calendar days)

Please reference the phasing plans, details and CSPP for specific requirements for haul routes, barricades, marking removal, etc. as part of C-106 Maintenance of Traffic.

Special Reports

Please reference Addendum 1 for the Geotechnical Report and Construction Safety and Phasing Plan (CSPP).

Construction Staging

The project staging area will be in the existing airport parking lot on Paris St. outside of the AOA. To access the airfield, the Contractor will construct a temporary AOA gate on the east side of the staging area to access JP Cooper Road. Any changes to the 7460 and Contractor equipment heights need to be communicated to HNTB to send an updated 7460 to the FAA as soon as possible.

Special Conditions

Reference the General Notes and Contract documents for special conditions and requirements for this project.

Federally Funded Project = FAA Standard Materials and Construction Methods

PowerPoint presentation from Pre-Bid meeting is attached.

SITE VISIT: N/A

QUESTIONS AND ANSWER PERIOD

HNTB

Kansas City International Airport
Taxiway E & Taxiway J Rehabilitation

KANSAS CITY Aviation Dept

Pre-Bid Conference
Attendance List

March 7, 2023

Name	Title	Company	Phone	E-mail
NICK ADRALES	ENGINEER	HNTB	816 [illegible] 2647	NADRALES@HNTB.COM
Matt Walsh	Engineer	HNTB	312-798-0253	mwalsh@hntb.com
Adam Nobbs	Project Manager	Clarkson	585-519 6469	Anobbs@clarksonconstruction.com
Mallie Hane	KCAD PM	KCAD	816 243 3037	mallie.hoehler@kcmo.org
JANE LISKA	KCAD DD	KCAD	816.243.3015	JANE.LISKA@KCMO.ORG
MikeWoller	KCADPlanningMgr.	"	243.3038	mike.woller@kcmo.org
CHRISTINA MCCLELLAN	CUSTOM ENGR	ON SITE ELECTRICIAN	816-5164228	cmcclellan@Customengr.com
WALTER MAY	ENGINEER	CEI	816-916-9991	wrmay@customengr.com

HNTB

Kansas City International Airport
Taxiway E & Taxiway J Rehabilitation

KANSAS CITY Aviation Dept

Pre-Bid Conference
Attendance List

March 7, 2023

Name	Title	Company	Phone	E-mail
BRYAN WATTENBARGER	EST.	ESS	816 223 1642	BRYAN-WATTENBARGER @ ENERYSAFF.COM
Cody Phillips	P.M.	Ideker	816 390-5620	cody@ideker.net
Wade Adams	PM/Est	Capital Elec	785-738-737	Wade.adams@capitalelectric.com
Austen Hubert	PM/Est	Capital Elec	816-500-6515	austen.hubert@capitalelectric.com

Taxiway E and Taxiway J Rehabilitation
Pre-Bid Meeting

KCI Project No. 62230566

A.I.P No. 3-29-0040-090 & 091

Kansas City International Airport

March 7th, 2023

KANSAS CITY Aviation Dept

HNTB

Agenda

- Project Description/ Scope of Work
- Construction Phases
  - Phase 1 – Work Area A
  - Phase 2 – Work Area A & B
  - Phase 3 – Work Area B & C
- Construction Staging
- Haul Routes
- Special Reports
- Special Conditions

KANSAS CITY Aviation Dept

HNTB

Agenda

- Project Description/ Scope of Work
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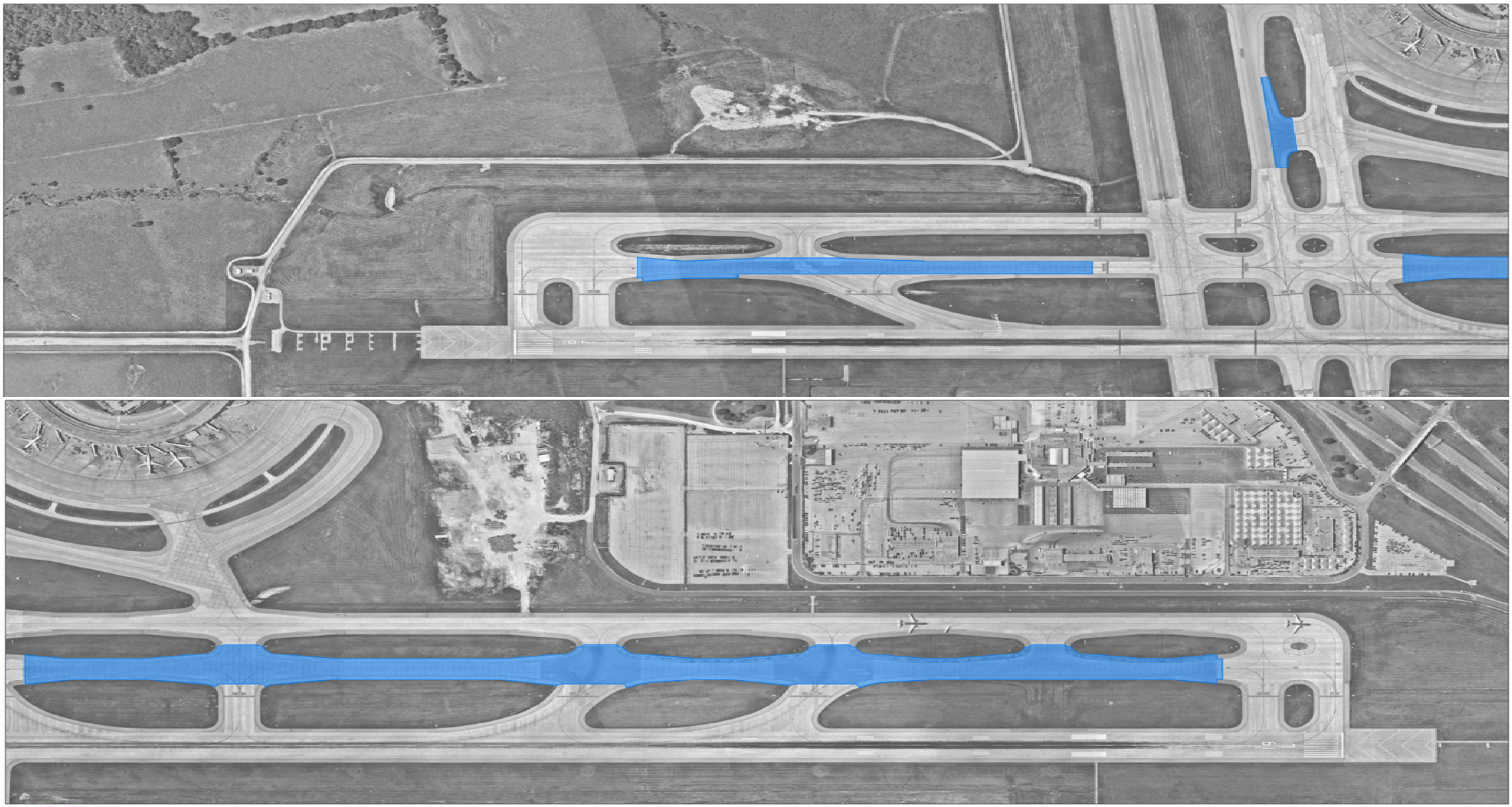
- Special Conditions

KANSAS CITY Aviation Dept

HNTB

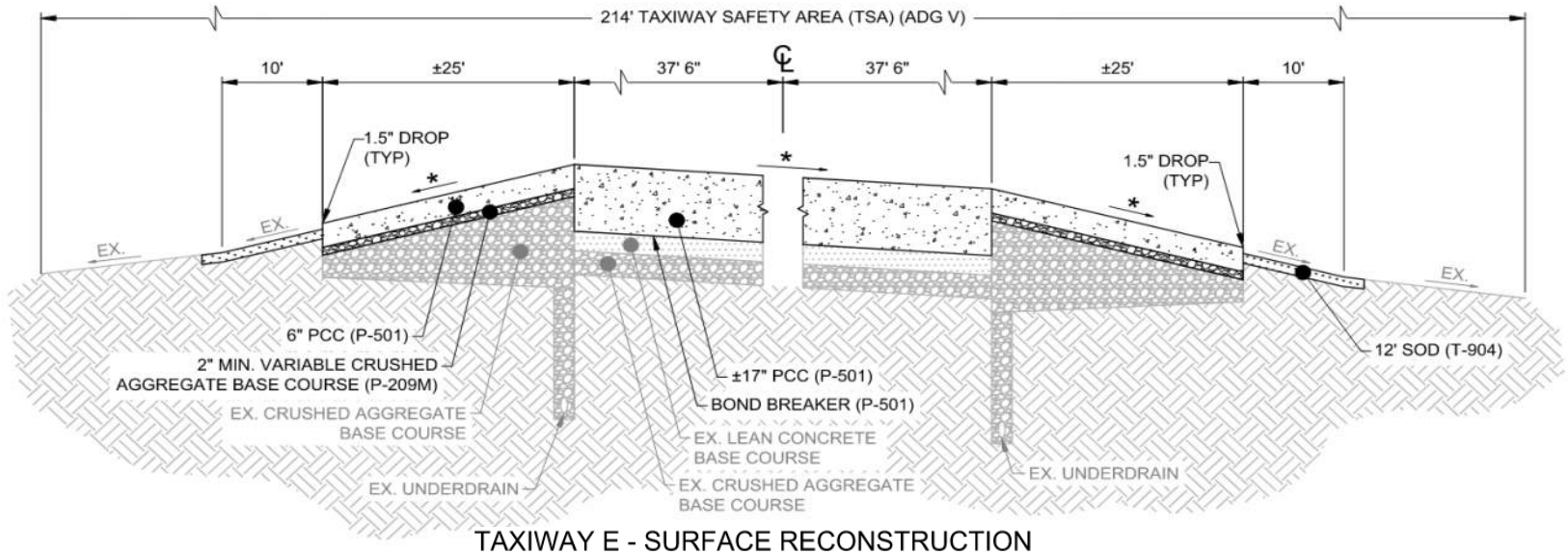
Project Description/ Scope of Work



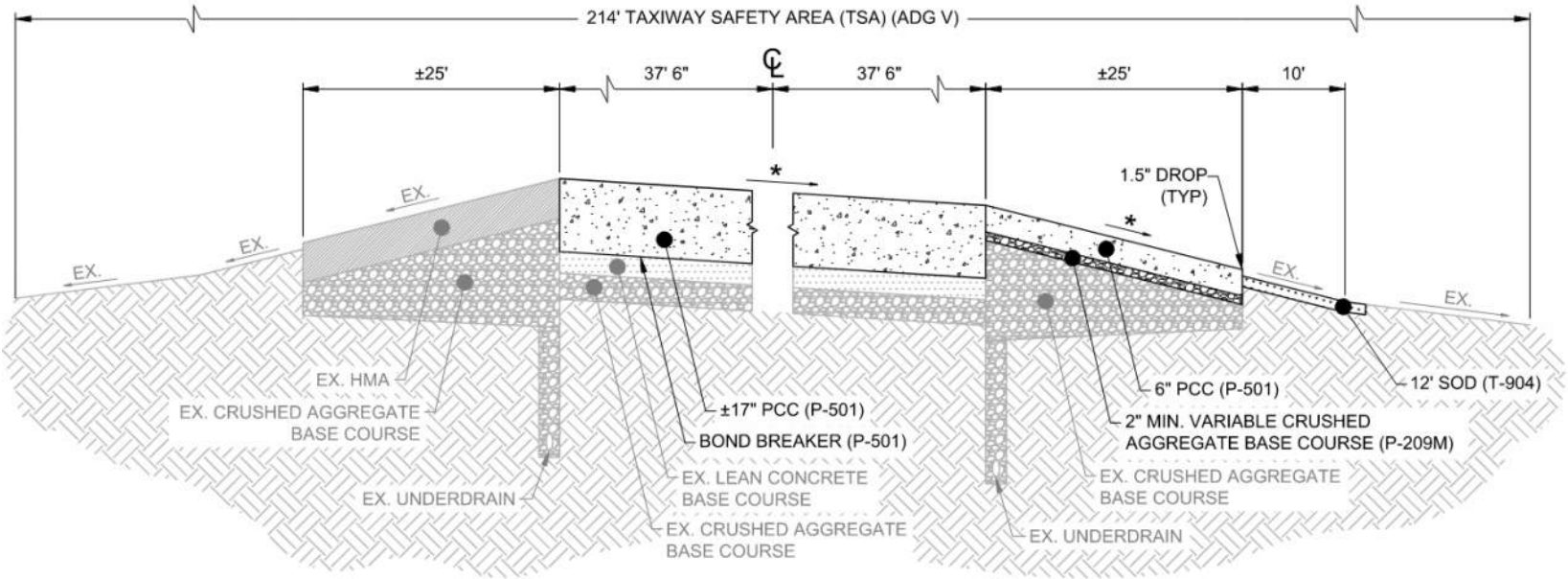
KANSAS CITY
Aviation Dept

HNTB

Typical Sections



TAXIWAY E - SURFACE RECONSTRUCTION

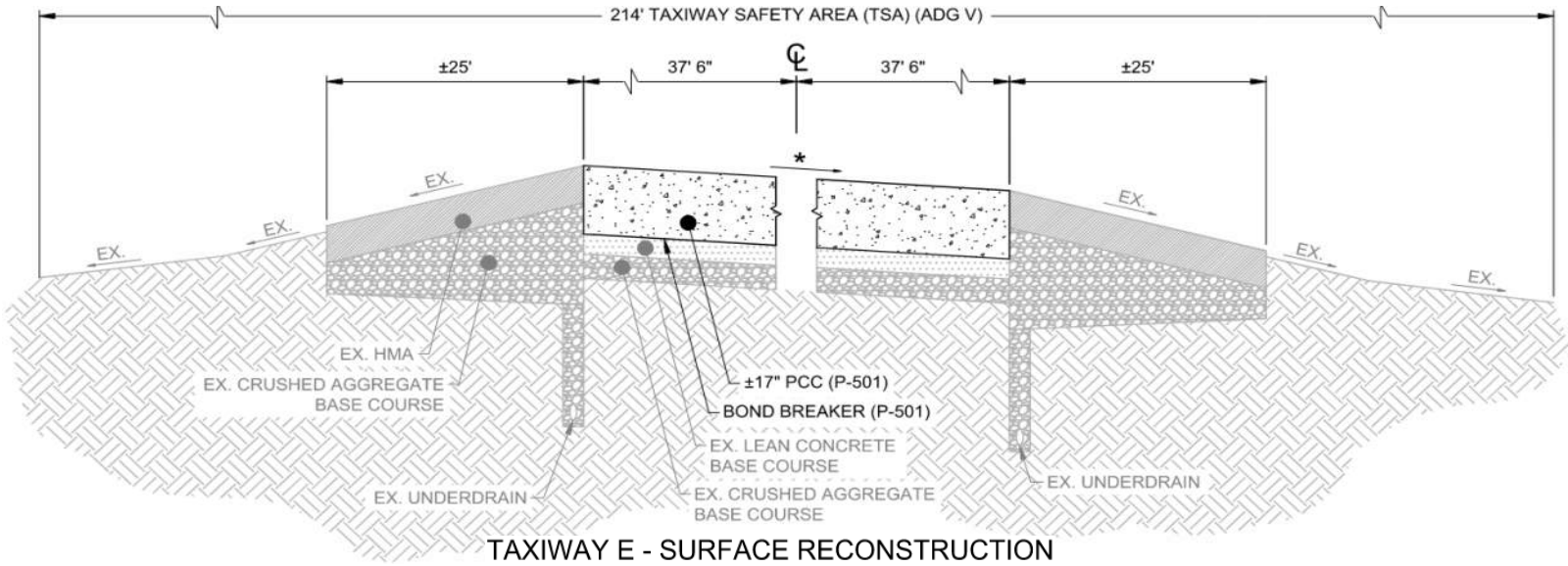


TAXIWAY E - SURFACE RECONSTRUCTION

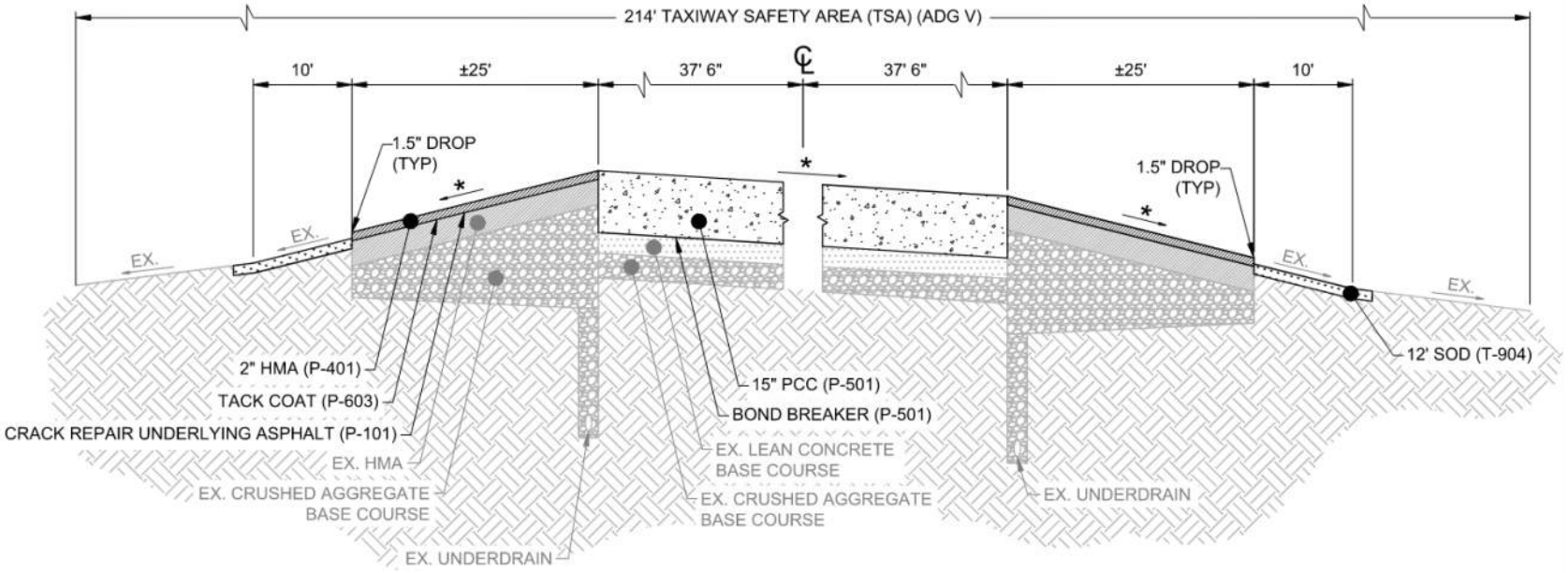
KANSAS CITY Aviation Dept

HNTB

Typical Sections



TAXIWAY E - SURFACE RECONSTRUCTION

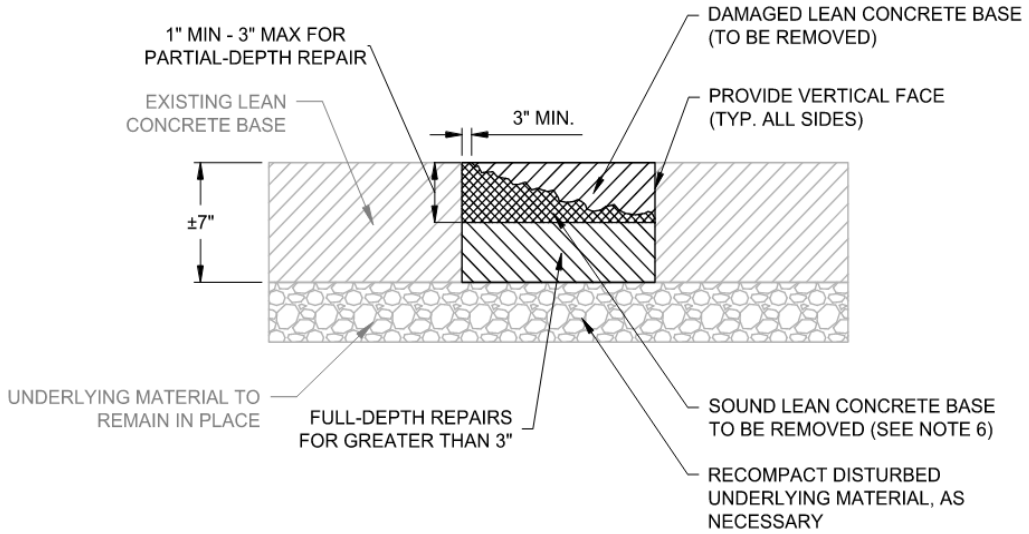


TAXIWAY J - SURFACE RECONSTRUCTION

KANSAS CITY Aviation Dept

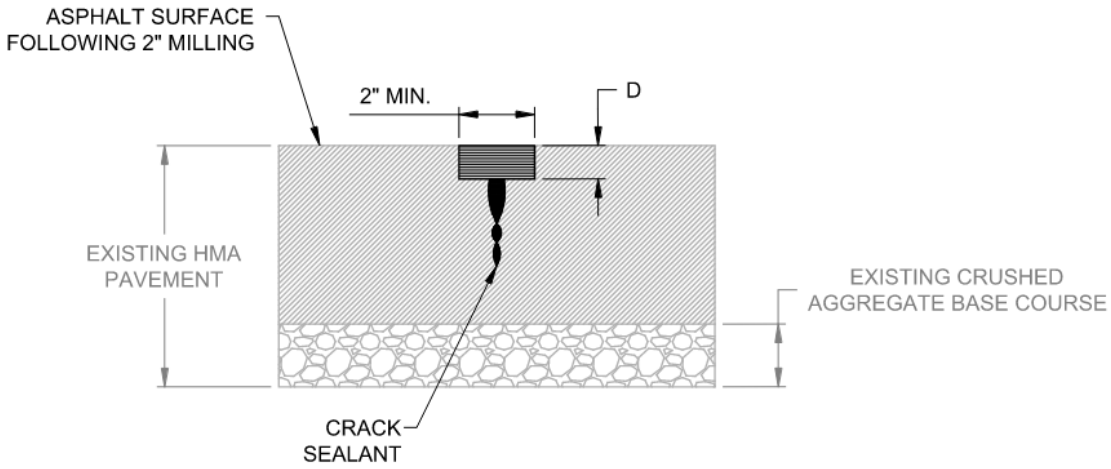
HNTB

Typical Sections



LEAN CONCRETE BASE REPAIR

NOT TO SCALE



CRACK REPAIR

NOT TO SCALE

KANSAS CITY
Aviation Dept

HNTB

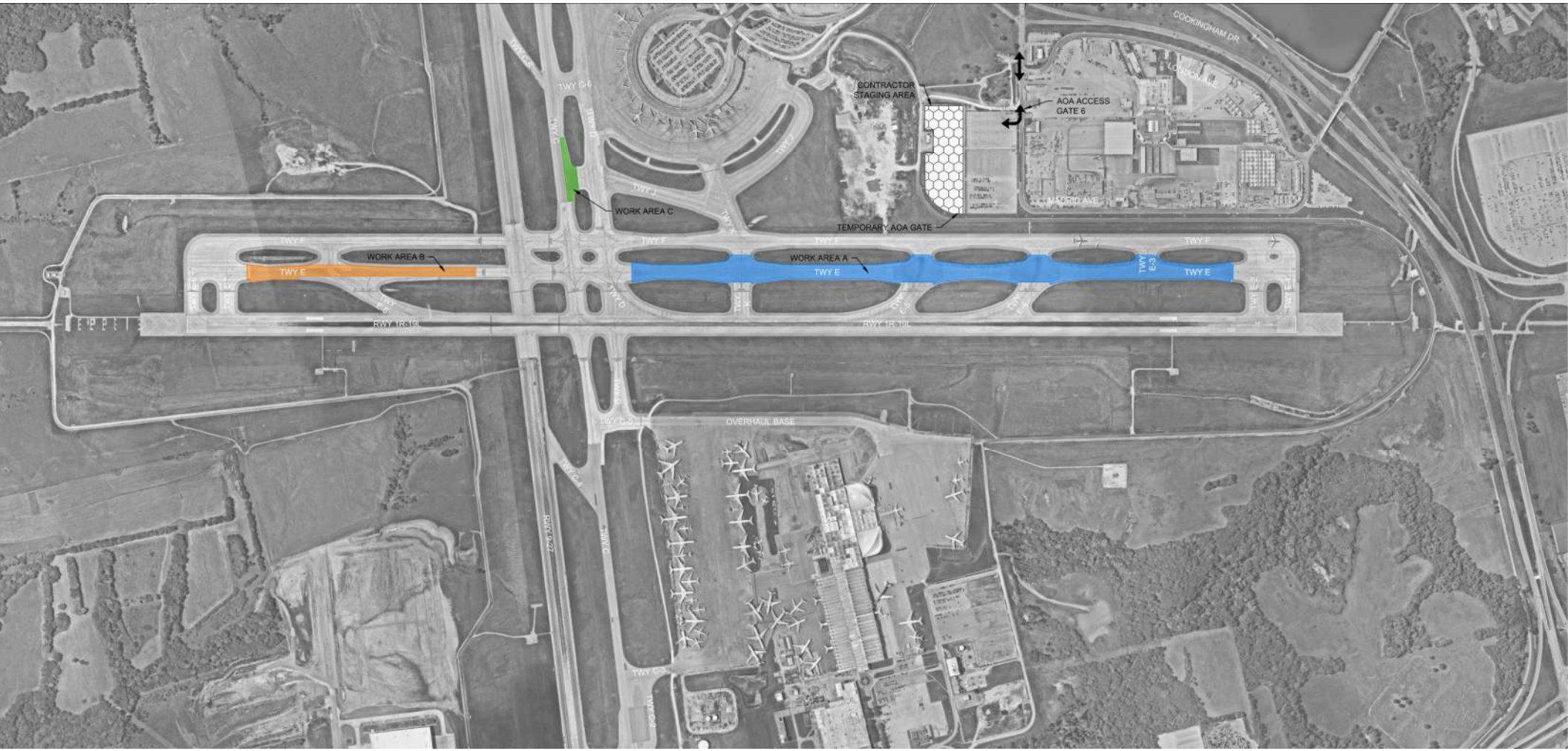
Agenda

- Project Description/ Scope of Work
- Construction Phases
  - Phase 1 – Work Area A
  - Phase 2 – Work Area A & B
  - Phase 3 – Work Area B & C
- Construction Staging
- Haul Routes
- Special Reports
- Special Conditions

KANSAS CITY Aviation Dept

HNTB

Overall Phasing Plan

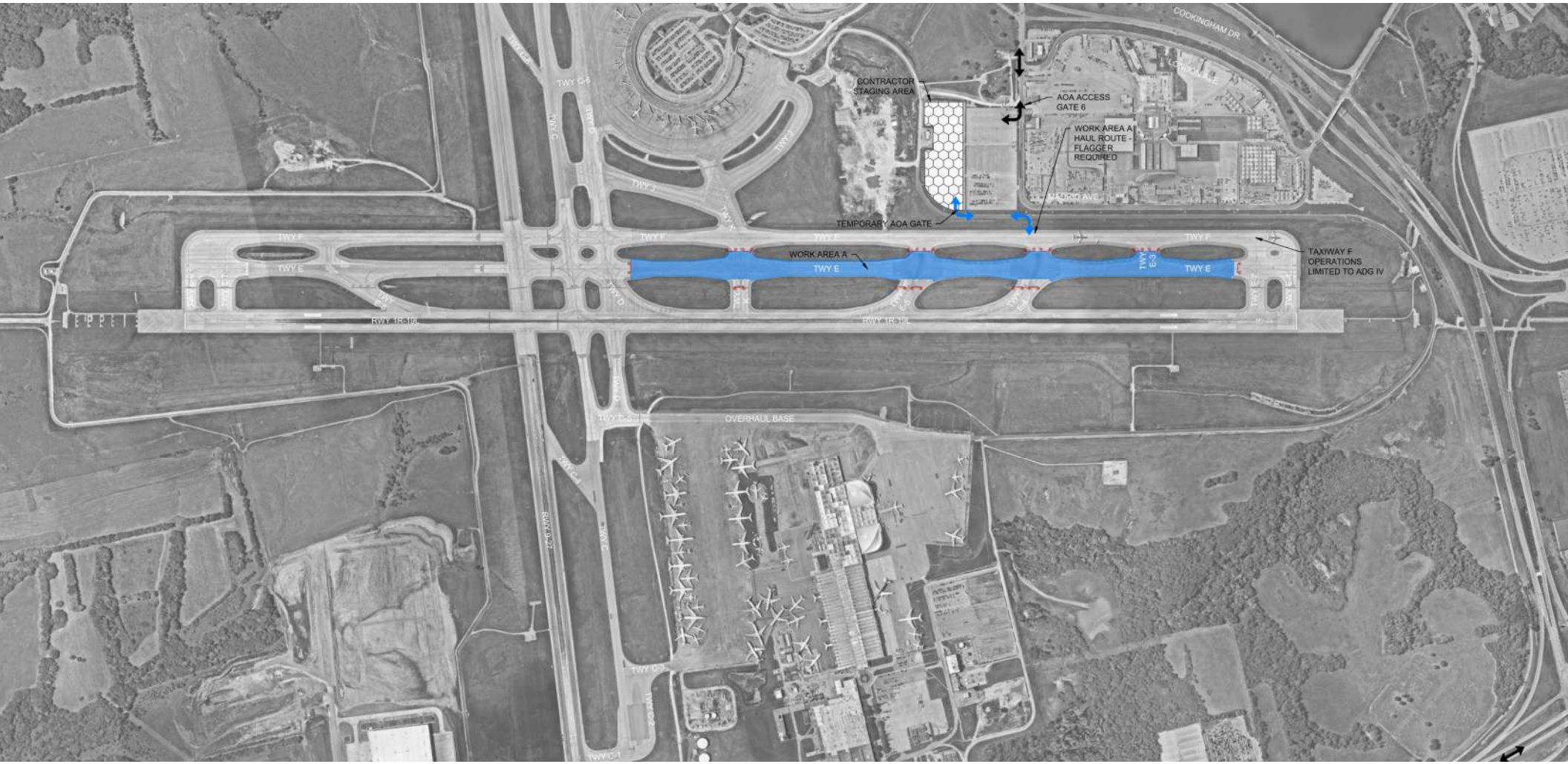


	CONSTRUCTION CALENDAR DAYS	CALENDAR YEAR 2023						
		JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	
		PHASE 1		PHASE 2		PHASE 3		
WORK AREA A	110							
WORK AREA B	89							
WORK AREA C	45							

KANSAS CITY Aviation Dept

HNTB

Phase 1 Plan

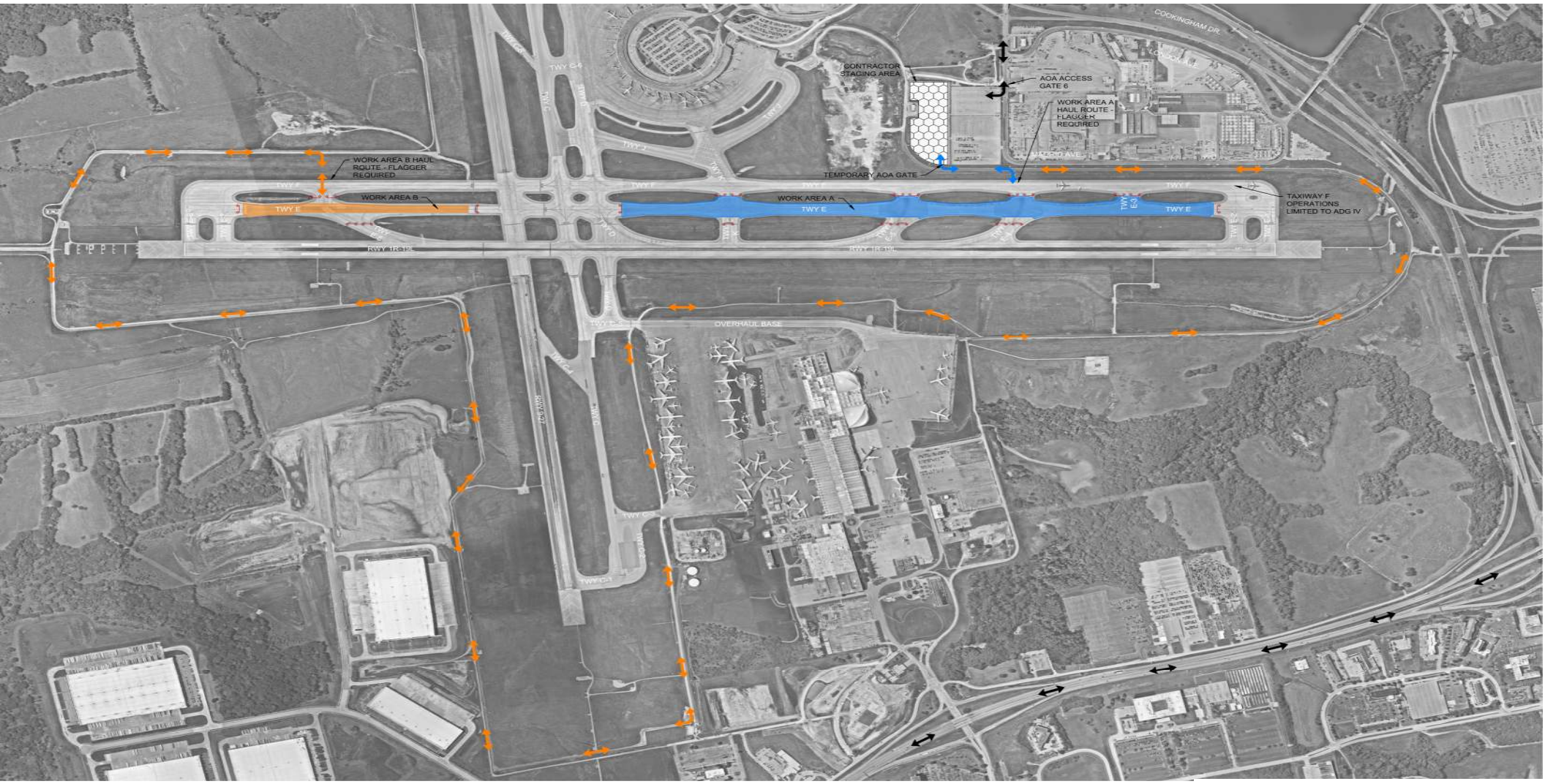


Work Area A
Duration: 66 Calendar Days
Anticipated NTP: June 2023

KANSAS CITY Aviation Dept

HNTB

Phase 2 Plan

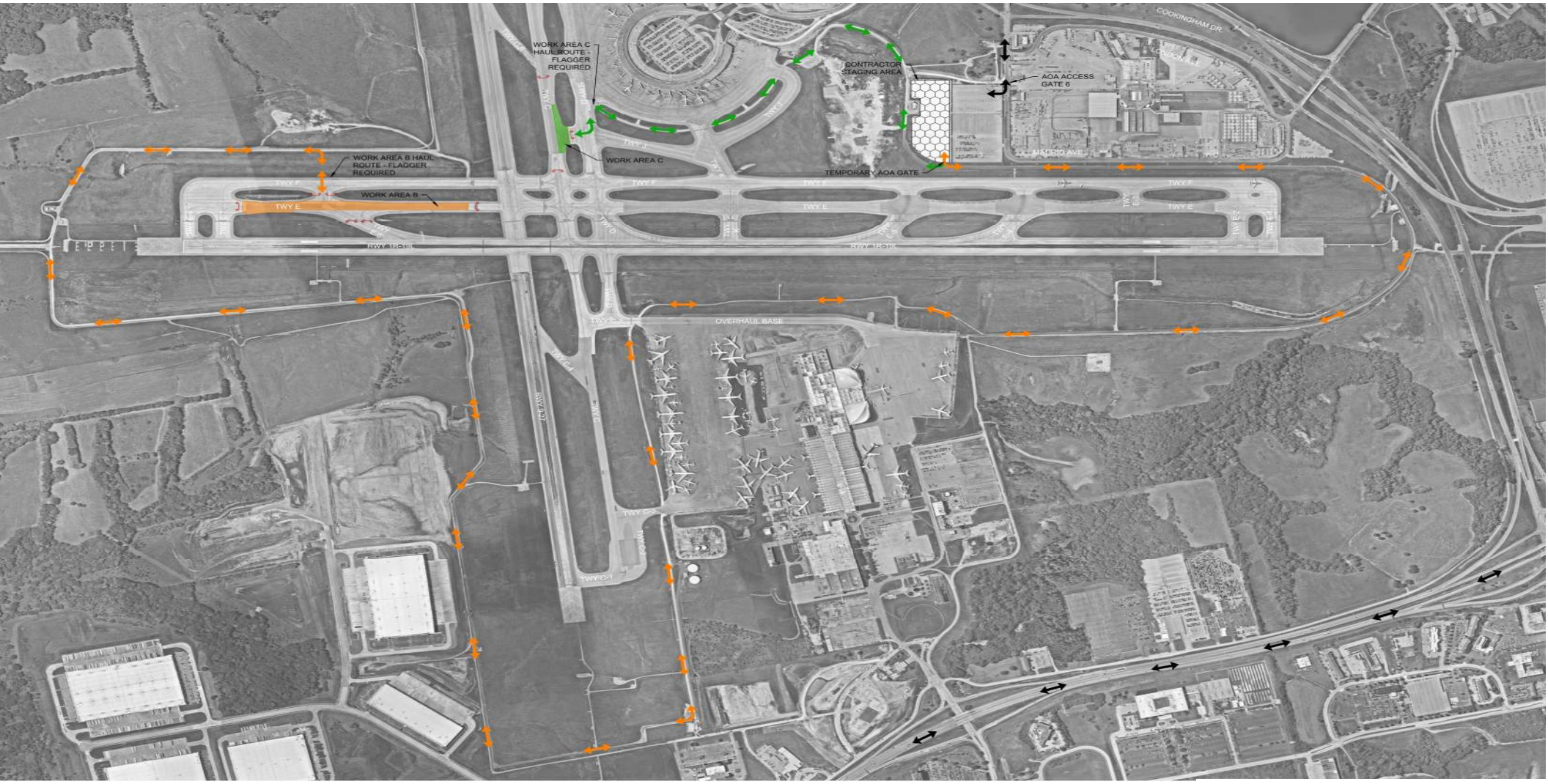


Work Area A and B
Duration: 44 Calendar Days

KANSAS CITY Aviation Dept

HNTB

Phase 3 Plan



Work Area B and C
Duration: 45 Calendar Days

KANSAS CITY Aviation Dept

HNTB

Agenda

- Project Description/ Scope of Work
- Construction Phases
  - Phase 1 – Work Area A
  - Phase 2 – Work Area A & B
  - Phase 3 – Work Area B & C
- Construction Staging
- Haul Routes
- Special Reports
- Special Conditions

KANSAS CITY Aviation Dept

HNTB

Airport Construction Safety and Security

- Contractor safety requirements are outlined in FAA Advisory Circulars
  - FAA AC 150/5370-2G Operational Safety on Airports During Construction
  - FAA AC 150/5210-5D Painting, Marking, and Lighting of Vehicles Used on an Airport
- Contractor shall submit a Safety Plan Compliance Document (SPCD)
- Contractor shall submit a Site Plan based on plan haul routes and staging areas
- Contractor shall submit a project specific SWPPP
- Contractor shall coordinate all construction activities and closures 72 hours prior to any work or closures
- AOA badging required for contractors, escorting, etc.

KANSAS CITY Aviation Dept

HNTB

Question & Answer Period

KANSAS CITY
Aviation Dept

HNTB

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

ADDENDUM NUMBER 3

Project Number 62230566

Project Title Taxiway E and Taxiway J Rehabilitation

ISSUE DATE: **March 13, 2023**

Bidders are hereby notified that the Bidding and Contract Documents for the above project, for which Bids are to be received on **March 21, 2023**, are amended as follows:

Information to Bidders The following is provided to Bidders for information only:

Q1. The project Joint Layout (CJ) sheets indicate the fixtures that require block outs as specified in plan note 3. Plan note 3 also states "Cost shall be incidental to L-125". Since no L-125 pay items are specific for block outs, how will it be handled if the "block out" counts change in the life of the project?

A1. Additional compensation will be provided to the Contractor if more than the specified five (5) fixtures require block outs as a result of a change directed by the Owner or RPR through a Request for Proposal (RFP). Joint layout changes proposed by the Contractor that vary from the Issued from Bid plans that require additional block outs will be at the expense of the Contractor.

NOTE: Bidders must acknowledge receipt of this Addendum by listing the number and date, where provided, on the Bid Form - Document 00410.

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

REQUEST FOR INTERPRETATION LOG

Project Number 62230566

Project Title Taxiway E and Taxiway J Rehabilitation

CONTRACTOR _____

OWNER _____

RFI No.	Issue Date	Brief Description of issue and response	Respond Date

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

REQUEST FOR INTERPRETATION

Project Number 62230566

Project Title Taxiway E and Taxiway J Rehabilitation

Contractor _____

RFI Number _____ Date _____

From: _____

To: _____

Re: _____

Spec. Sec. Ref:
Paragraph: Drawing Ref: Detail:

Signed:

Response:

❑ Attachments

Response From: To: Date Transmitted:_____ Date Rec'd:_____

Signed:_____ Signed:_____
Design Professional Owner's Representative

Distribution:
- ❑ Owner
- ❑ Contractor
- ❑ Construction Manager
- ❑ Design Professional
- ❑ Consultant _____
- ❑ Other _____

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

SUPPLEMENTAL DESIGN INSTRUCTION

Project Number 62230566

Project Title Taxiway E and Taxiway J Rehabilitation
To Contractor _____

From: _____ SDI No _____ Issue Date: _____

The Work shall be carried out in accordance with the following supplemental instructions issued in accordance with the Contract Documents without change in Contract Price or Contract Times. Proceeding with the Work in accordance with these instructions indicates your acknowledgement that there will be no change in the Contract Price or Contract Times.

Description:

❑ Attachments *(List)*

(Signature) Design Professional Date

Distribution:
- ❑ Owner
- ❑ Contractor
- ❑ Construction Manager
- ❑ Design Professional
- ❑ Consultant _____
- ❑ Other _____

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

REQUEST FOR PROPOSAL

Project Number 62230566
Project Title Taxiway E and Taxiway J Rehabilitation
To Contractor _____

From: _____ RFP No _____ Issue Date: _____

Please submit an itemized proposal for changes in the Contract Price and Contract Times for proposed modifications to the Contract Documents described herein. Submit proposal within _____ days, or notify the Owner in writing of the date on which you anticipate submitting your proposal.

This is NOT a Change Order, a Work Change Directive or a direction to proceed with the work described in the proposed modifications.

Description:

❑ Attachments

Prepared by Design Professional

Prepared by Construction Manager

REQUESTED by OWNER'S Representative

Distribution:
- ❑ Owner
- ❑ Contractor
- ❑ Construction Manager
- ❑ Design Professional
- ❑ Consultant _____
- ❑ Other _____

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

REQUEST FOR PROPOSAL LOG

Project Number 62230566

Project Title Taxiway E and Taxiway J Rehabilitation

CONTRACTOR _____

OWNER _____

RFP No.	Issue Date	Brief Description of Request	Respond Date	Amount	CO No.

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

CHANGE ORDER

Project Number 62230566

Project Title Taxiway E and Taxiway J Rehabilitation

Change Order No: _____ Date of Issuance: _____

Ordinance No: _____ Ordinance Effective Date: _____

Contract Notice To Proceed Date: _____

To CONTRACTOR:

The Contract is changed as follows: _____

This Change Order constitutes compensation in full on behalf of the Contractor and its subcontractors and suppliers for all costs, including impact costs and extended general conditions, and markups directly and indirectly attributable to the Work changes ordered herein, for all delays related thereto and for performance of the changes within the time stated. Contractor hereby releases all claims for delay, interruption, extended general conditions, impact and cumulative impact claims for this Work.

□ See Attached Document(s).

Not valid until signed by the Director of Finance.

The original Contract Price was	$0.00
Net change by previously authorized Change Orders	$0.00
The Contract Price prior to this Change Order was	$0.00
The Contract Price will be (□ increased by) (□ decreased by) (□ unchanged)	$0.00
The new Contract Price including this Change Order will be	$0.00
The Contract Time will be (□ increased by) (□ decreased by) (□ unchanged)	( ) calendar days
The date of Substantial Completion as of the date of this Change Order therefore is	Enter Date
The date of Final Completion as of the date of this Change Order therefore is	Enter Date

Project No. & Title
Change Order No.

DESIGN PROFESSIONAL:	**By:** **Title:**	**Date:**
CONTRACTOR:	**By:** **Title:**	**Date:**
CITY: Kansas City, Missouri	**By** **Title: Director of Aviation**	**Date:**

Approved as to form: _____
Assistant City Attorney

I certify there is a balance otherwise unencumbered to the credit of the appropriation to which the above amount is chargeable, and a cash balance otherwise unencumbered in the treasury to the credit of the fund from which payment is to be made, each sufficient to meet the above obligation.

_____ _____
Director of Finance Date

Distribution: ❑ CITY ❑ CONTRACTOR ❑ DESIGN PROFESSIONAL

REMINDER: CONTRACTOR is responsible for considering the effect this Change Order may have on its ability to meet or exceed the D/M/WBE participation amounts in its Contractor Utilization Plan (CUP) as amended by any previously approved Request for Modification/Substitution. If CONTRACTOR will not be able to achieve the approved participation amounts in performing the work included within this Change Order, or if CONTRACTOR needs to retain the services of additional D/M/WBEs not previously listed in its CUP, CONTRACTOR is advised to submit a Request for Modification/Substitution.

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

WORK CHANGE DIRECTIVE

Project Number: 62230566

Project Title: Taxiway E and Taxiway J Rehabilitation

No.: _____ Date of Issuance: _____

TO:
(CONTRACTOR)

You are directed to proceed promptly with the following work:

Description:

Purpose of Work Change Directive:

Attachments: *(List documents supporting change)*

If the above work results on a change in the Contract Price or Contract Times, any request for a Change Order based thereon will involve one or more of the following methods of determining the effect of the change(s).

Method of determining change in Contract Price:	Method of determining change in Contract Times:
❑ Unit Prices	❑ CONTRACTOR's Records
❑ Lump Sum	❑ DESIGN PROFESSIONAL's Records
❑ As Stipulated in General Conditions	❑ City's Records
❑ Other _____	❑ Other _____
Estimated increase (decrease) in Contract Price:	Estimated increase (decrease) in Contract Times:
$ _____	Substantial Completion: _____ days;
If the change involves an increase, the estimated Amount is not to be exceeded without further authorization.	Final Completion: _____ days. If the change involves an increase, the estimated times are not to be exceeded without further authorization.

Recommended:	Recommended:	Recommended:
DESIGN PROFESSIONAL	Construction Manager	City
By (Authorized Signature)	By (Authorized Signature)	By (Authorized Signature)

Distribution:
❑ City
❑ Contractor
❑ Construction Manager
❑ Design Professional
❑ Consultant
❑ Other

WORK CHANGE DIRECTIVE ("WCD") INSTRUCTIONS

[Note: Do not attach these instructions to the WCD Form]

A. GENERAL INFORMATION

This document was developed for use in situations involving changes in the Work which, if not processed expeditiously, might delay the Project. These changes are often initiated in the field and may affect the Contract Price or the Contract Times. This is not a Change Order, but only a directive to proceed with Work that may be included in a subsequent Change Order. If the WCD may result in an increase in the Contract Price, a contract impact cost analysis must be performed prior to issuing the WCD. Availability of funds and authorization to expend funds must be part of the analysis.

For supplemental instructions and minor changes not involving a possible change in the Contract Price or the Contract Times a Supplemental Design Instruction may be used.

B. COMPLETING THE WORK CHANGE DIRECTIVE FORM

Based on conversations between Design Professional, City's Representative and CONTRACTOR, Design Professional must complete the following:

DESCRIPTION: shall include a summary of the Work included in the WCD. Additional information may be attached to the WCD to further define the scope.

PURPOSE OF WORK CHANGE DIRECTIVE: will identify clearly if the Work included in the WCD is an addition, deletion, revision, or some combination.

ATTACHMENTS: shall identify all attachments included in and made a part of the WCD. Be certain that attachments are clearly labeled.

METHOD OF DETERMINING CHANGE, IF ANY, IN CONTRACT PRICE: Mark the method to be used in determining the final cost of Work involved and the estimated net effect on the Contract Price. If the change involves an increase in the Contract Price and the estimated amount is approached before the additional or changed Work is completed, another WCD must be issued to change the estimated price. Do not leave blank spaces or write "To be determined" (or "TBD"). An estimated dollar figure must be assigned to the Work. If the WCD is not likely to change the Contract Price, the space for estimated increase (decrease) should be marked "No Change in Price".

METHOD OF DETERMINING CHANGE, IF ANY, IN CONTRACT TIMES: Mark the method to be used in determining the change in Contract Times and the estimated increase or decrease in Contract Times. If the change involves an increase in the Contract Times and the estimated times are approached before the additional or changed Work is completed, another WCD must be issued to change the times or CONTRACTOR may stop the changed Work when the estimated times are reached. Do not leave blank spaces or write "To be determined" (or "TBD"). If the WCD is not likely to change the Contract Times, the space for estimated increase (decrease) should be marked "No Change in Times".

Once Design Professional has completed and signed the form, all copies should be sent to CITY for authorization because Design Professional does not have authority to authorize changes in Price or Times. Once authorized by CITY, a copy must be sent by Design Professional to CONTRACTOR. Price and Times may only be changed by Change Order signed by CITY, Design Professional, and CONTRACTOR. If the value of the work included in the WCD exceeds the contingency or budget available for the contract, staff must obtain written approval from the Director or his or her designee before the WCD is issued. A Director or his or her designee may not approve a WCD that will exceed City Council authorization. If the work included in the WCD is needed as a result of an emergency, staff may proceed with the issuance of the WCD without

prior written approval even if the value of the work added is expected to exceed the contract contingency balance.

Once the Work covered by this directive is completed or final cost and times are determined. CONTRACTOR must submit proper documentation for inclusion in a Change Order.

IF THIS IS A DIRECTIVE TO PROCEED WITH A CHANGE THAT MAY AFFECT THE CONTRACT PRICE OR THE CONTRACT TIMES A CHANGE ORDER, IF ANY, MUST BE PROCESSED PROMPTLY.

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

B. Section 011500 Security Control Procedures.

1.2 SUMMARY

A. This Section includes the following:

1. Work covered by the Contract Documents.
2. Type of the Contract.
3. Work phases.
4. Work under other contracts.
5. Use of premises.
6. Work restrictions.
7. Specification formats and conventions.

B. Related Sections include the following:
1. Division 01 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of CITY's facilities.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: 62230566 Taxiway E and Taxiway J Rehabilitation

1. Project Location: Kansas City International Airport, 1 International Circle, Kansas City, MO 64153

B. CITY: City of Kansas City, MO

1. CITY's Representative: Mallie Hare

2. Design Professional: HNTB Corporation, 715 Kirk Drive, Kansas City, MO 64105

3. Construction Manager for this Project is Project's Constructor. In Divisions 01 through 49 Sections, the terms "Construction Manager" and "Contractor" are synonymous.

C. The Work consists of the following:

1. The Work includes the rehabilitation of Taxiway E and Taxiway J at Kansas City International Airport (MCI). The project work includes demolition of the runway, erosion

control, pipe removal and installation, earthwork, lime treated subgrade, crushed base course, crushed aggregate base course, lean concrete base course, Portland Cement Concrete Paving, asphalt paving, pavement marking, electrical light and sign installation, grooving, sodding, seeding, and mulching.

1.4 TYPE OF CONTRACT

A. Project will be constructed under a single prime contract.
   1. Taxiway E and Taxiway J Rehabilitation

1.5 WORK PHASES

A. The Work shall be conducted in three (3) phases in the following order, with each phase substantially complete before beginning the next phase:

   1. Phase 1: Phase 1 is shown on the contract documents and phasing sheets of the plans which includes Work Area A (the north portion of Taxiway E). The work includes demolition of the taxiway surface pavement/ shoulders, erosion control, crushed aggregate base course, lean concrete base course repairs, Portland Cement Concrete Paving, pavement marking, electrical light installation, sodding, seeding, and mulching. Work of this phase shall be complete within 66 Calendar Days after commencement of construction of this phase.

   2. Phase 2: Phase 2 is shown on the contract documents and phasing sheets of the plans which includes Work Area A and B (the north and south portion of Taxiway E). The work includes demolition of the taxiway surface pavement/ shoulders, erosion control, crushed aggregate base course, lean concrete base course repairs, Portland Cement Concrete Paving, pavement marking, electrical light installation, sodding, seeding, and mulching. Work in Work Area A shall be substantially complete at the end of Phase 2 within 44 Calendar Days and ready for occupancy after commencement of construction of this phase.

   3. Phase 2: Phase 3 is shown on the contract documents and phasing sheets of the plans which includes Work Area B and C (south portion of Taxiway E and Taxiway J). The work includes The work includes demolition of the taxiway surface pavement/ shoulder, mill and asphalt overlay of shoulders, erosion control, crushed aggregate base course, lean concrete base course repairs, Portland Cement Concrete Paving, pavement marking, electrical light installation, sodding, seeding, and mulching.

B. Before commencing Work of each phase, submit a schedule showing the sequence, commencement and completion dates, and move-out and -in dates of CITY's personnel for all phases of the Work.

1.6 USE OF PREMISES

A. General: Contractor shall have limited use of premises for construction operations as indicated on Drawings by the Contract limits.

B. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Limits: Confine constructions operations to the actual construction site in the phasing plan.

2. CITY Occupancy: Allow for CITY occupancy of Project site.

C. Kansas City International Airport - Security Control Procedures and Security Identification Display Area (SIDA) Access Policy: In compliance with Part 1542 of the Transportation Security Regulation, the Airport has adopted and put into use facilities and procedures designed to provide for the safety of persons and property traveling in air transportation and intrastate air transportation against acts of criminal violence and aircraft piracy. CONTRACTOR, and each of its Subcontractors, shall comply with all Kansas City International Airport Security Control Procedures and the Security Identification Display Area (SIDA) Access Policy. Security Control Procedures are identified in Section 011500. Section 011500 is a part of these Contract Documents and will be strictly enforced throughout the duration of the Work.

D. Kansas City Aviation Department Vehicle Inspection And Safety Program

The Kansas City Aviation Department has developed a Vehicle Inspection and Safety Program administrated by the Airport Operations Division. The program establishes guidelines and procedures for issuing permanent and temporary Airport Operations Area (AOA) permit decals for all non-escorted motorized driven vehicles and all aircraft fuel carts governed by National Fire Protection Agency (NFPA) 407 operating on the AOA. The Vehicle Inspection and Safety Program is identified in Section 011501 and will be strictly enforced throughout the duration of the Work.

1.7 SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Format: The Specifications are organized into Divisions and Sections using the FAA's Advisory Circular 150/5370-10H, Standards for Specifying Construction of Airports.

1. Section Identification: The Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.
2. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.

B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words

shall be interpreted as plural and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.

2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

    a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

Individual Responsibilities
Identification / Access Badges
Kansas City International Airport (MCI)

Under the provisions of 49 CFR 1540.101, individuals shall be held responsible and personally accountable for all security violations described in 49 CFR 1540.103, 1540.105 and the MCI Airport Security Program. Violators may be subject to civil and/or local penalties.

- No person may tamper or interfere with, compromise, modify, attempt to circumvent, or cause a person to tamper or interfere with, compromise, modify, or attempt to circumvent any security system, measure, or procedure implemented under 49 CFR 1540 and 1542 or the MCI Airport Security Program.
- No person may enter or be present within, a Secured Area, AOA, or SIDA or sterile area without complying with the systems, measures, or procedures being applied to control access to, or presence or movement in, such areas.
- No person may use, allow to be used, or cause to be used, any airport-issued or airport-approved identification medium that authorizes the access, presence, or movement of persons or vehicles in Secured Areas, AOAs, or SIDAs in any other manner than that for which it was issued by the appropriate authority under 49 CFR 1540, 1542, 1544, and 1546 of the MCI Airport Security Program.
- Individuals in the Secured Area, AOA, SIDA or sterile area must continuously display the identification badge issued to that individual on the outermost garment, above waist level, or be under escort by a properly badged individual.
- Firearms/weapons are PROHIBITED in the Secured Area, AOA, and SIDA unless authorized for official business.
- Escort Procedures – Persons who do not have unescorted access authority and have a need to enter a restricted area, must be under "positive" escort by a person who has a valid authorized identification/access badge. "Positive" escort means the individual providing the escort must be in the proximity of the individual(s) being escorted to the extent capable of controlling the movement of the individual(s) and ensure the individual(s) under escort is engaged in only activities for which escorted access was granted. Should the individual(s) attempt to engage in unauthorized activity, the person providing the escort should conduct a verbal challenge. Should the person providing the escort become endangered, or the escorted individual(s) is unresponsive to the verbal challenge, ACC should be notified immediately by radio or telephone. ACC will dispatch an Airport Police Officer to the reported location for appropriate action and follow-up. When an individual fails to successfully complete a Security Threat Assessment (STA) or Criminal History Records Check (CHRC), or is subsequently disqualified due to an STA or CHRC disqualifying offense, where required, the Airport may not grant the individual escorted or unescorted access to the SIDA, Secured Area, Sterile Area, or AOA.

  No person may be escorted into the Secured Area, AOA, SIDA, or sterile area that has been granted unescorted access authority and does not have their identification/Access card in their possession.

- Challenge – Each airport employee, airport tenant or contractor who has been issued an airport identification/access badge has the responsibility to challenge any person(s), whether in uniform or not, who is not displaying an airport approved identification badge within the Secured Area/SIDA of MCI in a manner prescribed herein, or a person displaying an identification badge with unauthorized color-code for the area, or the badge is expired, or the badge was not issued to the individual displaying it, and immediately report the incident to Airport Police. The challenge should be accomplished in a non-threatening manner. Non-security/law enforcement personnel are not expected to place themselves or others in a dangerous situation if it is suspected that a challenge would result in such. The challenge requirement may also be satisfied when Airport Police are immediately notified at the time a person is found to be in the Secured Area, AOA, SIDA or sterile area without a badge or proper authorization. When a verbal challenge is not made, the continuous location, name, and/or description of the person should be relayed to Airport Police. Persons found to be without a badge, or in an unauthorized area, shall be immediately escorted from the area and Airport Police notified. Airport Police will take deliberate and appropriate action following investigation on each incident.
- In the event an identification/access badge is lost or stolen, individuals must immediately notify the Airport ID Office at 243-5211 or the Airport Communications Center at 243-4000. The replacement fee is $50 for regular employees and $100 for contractors.
- All identification/access cards remain the property of MCI Airport and must be surrendered upon termination of employment. Failure to return an identification/access media card can result in a warrant being issued for the individual's arrest.

I have read and understand the above responsibilities.

_____ _____

Employee Signature Employer

Employee Telephone Number _____ _____

Date

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AUTHORIZED SIGNATURES
FOR
MCI AIRPORT ID / ACCESS BADGES, KEYS, and/or PADLOCKS

_____

Company Name (Print)

To request Identification / Access badges, keys, and/or padlocks, the following are the only Authorized Signatures for the above company:

Printed Name:	**Signature:**	**Title:**	**Telephone:**	**E-Mail:**

Manager's Printed Name: _____

Manager's Signature: _____

Mailing Address: _____

_____

Telephone Number: _____

Fax Number: _____

E-Mail Address: _____

Revised: April 2009

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MCI AVIATION DEPARTMENT

SECURED AREA & STERILE AREA ACCESS KEY REQUEST (KEY CUSTODIANS)

KEYMARK #_____ **COMPANY**_____

ID BADGE #_____ **SSN**_____

Control of a key is as significant as the control of the KCI Airport Identification / Access badge. Loss of a key compromises the security of the airport. Lost keys MUST be reported to Airport Police at 243-5219 immediately.

_____ _____

Signature of Individual Requesting Key Date

_____ _____

Signature of Authorized Signatory / Key Custodian Date

FOR AIRPORT ID OFFICE USE ONLY

Keymark #_____

Number of Keys Issued_____

From Key Serial #_____ To Key Serial #_____

Key Returned

Keymark #_____ Date_____

From Key Serial #_____ To Key Serial #_____

_____

Signature of Individual Returning Keys

_____

Signature of ID Office Customer Service Representative Accepting Keys

TSA APPROVED
DATE SEP 20 2012

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SECURED AREA & STERILE AREA ACCESS KEY ISSUE LOG
Kansas City International Airport (MCI)

(Please Print)

TENANT / AGENCY_____KEYMARK #_____

KEY CUSTODIAN_____DATE_____

				TSA APPROVED DATE SEP 20 2012

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AOA ACCESS KEY/PADLOCK REQUEST

Kansas City International Airport (MCI)

EMPLOYEE'S NAME _____ **SPONSOR**_____

COMPANY NAME _____ **PROJECT #**_____

KEY CONTROL #_____ **COMPLETION DATE** _____

ID/ACCESS BADGE# _____ **SSN** _____

There is a $50.00 fee for each key or padlock lost. There is no refund on keys reported lost or missing, then later returned. Padlocks will not be removed without prior coordination with the Aviation Department. Control of this key and/or padlock is as significant as the control of the MCI Airport ID Access badge. Loss of this key and/or padlock compromises the security of the airport. Loss of this key and/or padlock will be reported to the Airport ID Office immediately. Padlock will be confiscated if found unsecured.

_____ _____

Signature of Authorized Individual Employee's Signature

_____ _____

Printed Name of Authorized Individual Date

FOR AIRPORT ID OFFICE USE

Key Serial # _____ Padlock #_____ Quantity of padlocks issued _____

Key Returned: Control # _____ Date_____

Serial # _____ Signature _____

Rev.7/13/2006

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AOA ACCESS KEY ISSUE LOG
Kansas City International Airport (MCI)

(Please Print)

TENANT / AGENCY_____KEY CONTROL #_____

KEY CUSTODIAN_____DATE_____

EMPLOYEE NAME	MCI BADGE #	KEY SERIAL #	ISSUE DATE	RETURN DATE

Attachment 6

Rev.6/1/04

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CRIMINAL HISTORY RECORDS CHECK
FINGERPRINT APPLICATION
Kansas City International Airport (MCI)

Name (Print) _____
Last First Middle

Disqualifying criminal offenses as defined in TSR Part 1542.209(d) and TSR 1544.229(d):

1. Forgery of certificates, false marking of aircraft, and other aircraft registration violation; 49 U.S.C. 46306.
2. Interference with air navigation; 49 U.S.C. 46308.
3. Improper transportation of a hazardous material; 49 U.S.C. 46312.
4. Aircraft piracy; 49 U.S.C. 46502.
5. Interference with flight crew members or flight attendants; 49 U.S.C. 46504.
6. Commission of certain crimes aboard aircraft in flight; 49 U.S.C. 46506.
7. Carrying a weapon or explosive aboard aircraft; 49 U.S.C. 46505.
8. Conveying false information and threats; 49 U.S.C. 46507.
9. Aircraft piracy outside the special aircraft jurisdiction of the United States; 49 U.S.C. 46502(b).
10. Lighting violations involving transporting controlled substances; 49 U.S.C. 46315.
11. Unlawful entry into an aircraft or airport area that serves air carriers or foreign air carriers contrary to established security requirements; 49 U.S.C. 46314.
12. Destruction of an aircraft or aircraft facility; 18 U.S.C. 32.
13. Murder.
14. Assault with intent to murder.
15. Espionage.
16. Sedition.
17. Kidnapping or hostage taking.
18. Treason.
19. Rape or aggravated sexual abuse.
20. Unlawful possession, use, sale, distribution, or manufacture of an explosive or weapon.
21. Extortion.
22. Armed or felony unarmed robbery.
23. Distribution of, or intent to distribute a controlled substance.
24. Felony arson.
25. Felony involving a threat.
26. Felony involving
    a. Willful destruction of property;
    b. Importation or manufacture of a controlled substance;
    c. Burglary;
    d. Theft;
    e. Dishonesty, fraud, or misrepresentation;
    f. Possession or distribution of stolen property;
    g. Aggravated assault;
    h. Bribery; or
    i. Illegal possession of a controlled substance punishable by a maximum term of imprisonment of more than 1 year.
27. Violence at international airports; 18 U.S.C. 37.
28. Conspiracy or attempt to commit any of the criminal acts listed in this paragraph.

By signing this application, I officially state I have not been convicted or found not guilty by reason of insanity of any disqualifying criminal offense in any jurisdiction during the 10 years prior to the date of this application.

Individuals have a continuing obligation to disclose to the airport operator, within 24 hours, if he or she is convicted of any disqualifying criminal offense that occurs while he or she has unescorted access authority under 49 CFR 1542.209.

The information I have provided on this application is true, complete, and correct to the best of my knowledge and belief and is provided in good faith. I understand that a knowing and willful false statement on this application can be punished by fine or imprisonment or both (See section 1001 of Title 18 United States Code.)

Signature: _____ Date: _____

Employee Telephone Number_____ **Rev.6/1/04**

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CHRC CASE # _____

CERTIFICATION
For
Fingerprint Based Criminal History Records Check/Criminal Records Check
Kansas City International Airport (MCI)

_____ _____
Employee's Name Social Security Number

_____ _____
Employer Date

☐ AIRCRAFT OPERATORS:
MCI shall accept certification from Aircraft Operators for each aircraft operator employee and contractor seeking unescorted access authority to the Secured Area and SIDA under the provisions of TSR Parts 1542.209 and 1544.229.

☐ FEDERAL, STATE, and LOCAL GOVERNMENT:
As a condition of employment, the employee has been subjected to an employment investigation which included a criminal records check.

☐ CONTINUOUS EMPLOYMENT – UNESCORTED ACCESS:
The employee has been continuously employed in a position requiring unescorted access authority by another airport operator, airport user, aircraft operator, or contractor to such an entity, and the employee's grant for unescorted access authority was based upon a fingerprint based CHRC through TSA or FAA.

☐ CONTINUOUS EMPLOYMENT – SCREENERS:
The employee has been continuously employed by an aircraft operator or aircraft operator contractor in a position with authority to perform screening functions, and the employee's grant for unescorted access authority was based upon a fingerprint based CHRC through TSA or FAA.

By my signature: I certify that in accordance with TSR Parts 1542 and 1544, the applicant has undergone a criminal records check as a condition of employment or a fingerprint based criminal history records check that did not disclose the individual has been convicted or found not guilty by reason of insanity of any of the disqualifying crimes in any jurisdiction during the 10 years before the date of the individual's application. A written record of this information will be maintained until 180 days after the employee's authority for unescorted access has been terminated. I further understand and stipulate the employer assumes responsibility for all fines imposed by the Transportation Security Administration upon the City of Kansas City, Missouri Aviation Department for any violation of this employee's criminal history records check.

_____ Date_____
Authorized Signature

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EMPLOYER:	CONTRACTOR: SUB:

APPLICATION
IDENTIFICATION / PROXIMITY CARD
Kansas City International Airport (MCI Category I)

Once the KCI Airport ID Badge Application is signed by the Authorized Signatory, the individual has 5 working days to respond to the ID Office to obtain a badge.

Select One: **NEW** **RENEWAL** **LOST** **DAMAGED** **NAME CHANGE** **ADDITIONAL CATEGORY**

Full Legal Name _____
(Last) (First) (Middle Name) (Full Initials)

Former / Other Names _____
(Provide the Given and Surname; for example: Joseph Robert Doe and Joe Bob Doe)

Current Mailing Address _____

City _____ State_____ Zip_____ Address **Country** (NCIC 2 character abbr.) ☐☐
(Please refer to Attachment 10 Handout - NCIC 2-Character Abbreviations for complete listing.)

Daytime Telephone Number _____ Gender: **Male** or Female
Work Number Home Number

Place of Birth **Country** (NCIC 2-character abbr.) ☐☐ Citizenship **Country** Code (NCIC 2-character abbr.) ☐☐

(Please refer to Attachment 10 Handout - NCIC 2-Character Abbreviations for complete listing.)

Social Security Number: ☐☐☐☐☐☐☐☐☐ (9 digits) Date of Birth: ☐☐☐☐☐☐☐☐ (MMDDYYYY)

For individuals who are not U.S. citizens, provide the:

Alien Registration # ☐☐☐☐☐☐☐☐☐ (9 digits) I-94 Arrival / Departure Form # ☐☐☐☐☐☐☐☐☐☐☐ (11 digits)

For individuals who hold a non-immigrant visa, provide the visa control number, which appears in the top right-hand corner of the visa and is labeled "Control Number."

Non-Immigrant Visa Control Number: _____

For individuals who are U.S. citizens born abroad or naturalized U.S. citizens, provide:

Passport Number _____ Passport Country (NCIC 2-character abbr.) ☐☐

(Passport information is voluntary but may expedite the adjudication process for applicants who are U.S. citizens born abroad.)

OR

Certificate of Naturalization Number ☐☐☐☐☐☐☐☐☐
Form N-550 or N-570, (9 digits) Appears on right side of the document.

OR

Certification of Birth Abroad _____
(Form DS-1350 or 10-digit document number, which appears in top right-hand corner of document. Precede the 10-digit Number with DS. For example, DS 159-XXXXXXX.

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Type of Badge (select one): Permanent Contractor Temporary

Employer's Company Name: _____
(If the individual holds multiple identification media, a separate badge application must be completed for each employer.)

Contractor (if needed)_____ Project Number: _____

Project End Date:_____

Company – Selected Door Category Access:_____
(Please refer to Attachment 10 Handout - Door Category Access for complete listing – indicate coded areas of access needed.)

Check One	Access Level	Badge Type
	AOA, Secured Area, SIDA (Unescorted access to Secured Area and AOA.)	Blue
	AOA, Secured Area, SIDA, Sterile Area (Unescorted access to Secured Area, AOA, & Sterile Area.)	Blue Sterile
	AOA, SIDA (Unescorted access to SIDA – cargo ramps, Post Office ramp, General Aviation ramp.)	Green
	Sterile Area (Unescorted access to Sterile Areas.)	Violet
	Public Areas (No access to Secured Area, SIDA, AOA, or Sterile Area.)	White
	Airport Police Staff Only (ACC, TCO'S, ID Office, Taxi, Uniguard (contract Security).)	Gray
	Secured Area, SIDA (Unescorted access to Secured Area.)	Yellow
	Secured Area, Sterile Area (Unescorted access to Secured Area and Sterile Area.)	Yellow Sterile
	Overhaul Base Only	Red

Check All That Apply	Additional Authorities
	Armed Law Enforcement (includes unescorted access in a sterile area)
	Contractor
	AOA Non-Movement Driver***(Valid Driver's License Required)**
	AOA Movement Driver***(Valid Driver's License Required)**
*Driver's License #_____ State:_____ Expiration:_____	
	Authorized to Escort **(based on operational need, job duties, history of any local security violations) "E"**
	Authorized to Inspect (**Concessionaires**) "I"
	U.S. Customs and Border Protection FIS Authorization _____

CBP Authorized Signature (Attachment 2 on File) & Date

IDENTITY AND WORK AUTHORIZATION

******This Section Completed by ID Office Personnel Only – Authorized Signatories Do Not Complete ******

For all individuals holding or applying for a KCI Airport-issued personnel identification badge, identity and work authorization must be verified. Authorized Signatories, please refer to accompanying handout for a list of acceptable documents. **The original documents must be presented to the KCI Airport ID Office for inspection.** KCI Airport ID Office Trusted Agent personnel will verify these acceptable documents and provide their signature.

1. Document that Establish **Both Identity** and **Employment** Eligibility (from Identity & Work Authorization Handout, **List A**):

_____ Verified By:_____
(Document Type) (Document Number) (Full Name)

OR

2. Document that Establish **Identity** (from Identity & Work Authorization Handout, **List B**):

_____ Verified By:_____
(Document Type) (Document Number) (Full Name)

AND

3. Document that Establish **Employment** Eligibility (from Identity & Work Authorization Handout, **List C**):

_____ Verified By:_____
(Document Type) (Document Number) (Full Name)

SENSITIVE SECURITY INFORMATION / FOR OFFICIAL USE ONLY WARNING: This document contains Sensitive Security Information that is controlled under 49 CFR Part 1520. No part of this document may be released to persons without a need to know, as defined in 49 CFR 1520, except with the written permission of the Administrator of the Transportation Security Administration, Arlington, VA. Unauthorized release may result in civil penalty or other action. For U.S. Government agencies, public release is governed by 5 U.S.C. 522.

The information I have provided is true, complete, and correct to the best of my knowledge and belief and is provided in good faith. I understand that a knowing and willful false statement can be punished by fine or imprisonment or both. (See Section 1001 of Title 18 of the United States Code.)

I authorize the Social Security Administration to release my Social Security Number and full name to the Transportation Security Administration, Intelligence and Analysis (IA), Attention: Aviation Programs (TSA-10)/Aviation Worker Program, 601 South 12th Street, Arlington, VA 20598. I am the individual to whom the information applies and want this information released to verify that my SSN is correct. I know that if I make any representation that I know is false to obtain information from Social Security records, I could be punished by a fine or imprisonment or both.

I understand and verify through my signature below there is a ***$100 charge for each badge not returned and a $ 50 charge for an expired or lost badge.*** If a lost badge is returned within 30 days after being reported lost or stolen and before its expiration date, the charge will be refunded. No refunds will be provided without a receipt.

I understand and verify through my signature below a $110 deposit is required for each contractor badge prior to obtaining the badge at the Airport ID Office. ***The $110 deposit will be withheld for all contractor badges not returned, expired, or lost. If a contractor badge is lost or stolen, a $110 charge will be assessed before the contractor badge is replaced.*** If a lost contractor badge is returned within 30 days after being reported lost or stolen and before its expiration date, the charge will be refunded. No refunds will be provided without a receipt.

Print Employee Full Name | Employee Signature | Date

SSN (9 digits)

Date of Birth (MMDDYYYY)

The Privacy Act of 1974 5 U.S.C. § 552a(e)(3)

Privacy Act Notice

Authority: 6 U.S.C § 1140, 46 U.S.C § 70105; 49 U.S.C §§ 106, 114, 5103a, 40103(b) (3), 40113, 44903, 44935-44936, 44939 and 46105; the implementing Recommendations of the 9/11 Commission Act of 2007, § 1520 (121 Stat. 444, Public Law 110-53, August 3, 2007); FAA Reauthorization Act of 2018, § 1934(c) (132 Stat. 3186, Public law 115-254, Oct 5, 2018), and Executive Order 9397(November 22, 1943), as amended.

Purpose: The Department of Homeland Security (DHS) will use the biographic information to conduct a security threat assessment. Your fingerprints and associated information will be provided to the Federal Bureau of Investigation (FBI) for the purpose of comparing your fingerprints to other fingerprints in the FBI's Next Generation Identification (NGI) system or its successor systems including civil, criminal, and latent fingerprint repositories. The FBI may retain your fingerprints and associated information in NGI after the completion of this application and, while retained, your fingerprints may continue to be compared against other fingerprints submitted to or retained by NGI. DHS will also transmit your fingerprints for enrollment into US-VISIT Automated Biometrics Identification System (IDENT). DHS may provide your name and SSN to the Social Security Administration (SSA) to compare that information against SSA records to ensure the validity of the information.

Routine Uses: In addition to those disclosures generally permitted under 5 U.S.C. § 522a(b) of the Privacy Act, all or a portion of the records or information contained in this system may be disclosed outside DHS as a routine use pursuant to 5 U.S.C. § 522a(b)(3) including with third parties during the course of a security threat assessment, employment investigation, or adjudication of a waiver or appeal request to the extent necessary to obtain information pertinent to the assessment, investigation, or adjudication of your application or in accordance with the routine uses identified in the TSA system of records notice (SORN) DHS/TSA 002, Transportation Security Threat Assessment System. For as long as your fingerprints and associated information are retained in NGI, your information may be disclosed pursuant to your consent or without your consent as permitted by the Privacy Act of 1974 and all applicable Routine Uses as may be published at any time in the Federal Register, Including the Routine Uses for the NGI system and the FBI's Blanket Routine Uses.

Disclosure: Pursuant to § 1934(c) of the FAA Reauthorization Act of 2018, TSA is required to collect your SSN on applications for Secure Identification Display Area (SIDA) credentials. For SIDA applications, failure to provide this information may result in denial of a credential. For other aviation credentials, although furnishing your SSN is voluntary, if you do not provide the information requested, DHS may be unable to complete your application for a security threat assessment.

I verify through my signature below that I have read and understand the above Privacy Act Notice.

Print Employee Full Name | Employee Signature | Date

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SCREENING NOTICE:

Any employee holding a credential granting access to a Security Identification Display Area may be screened at any time while gaining access to, working in, or leaving a Security Identification Display Area. All Badged employees working at MCI will be enrolled into the FBI RAPBACK program.

As an **AUTHORIZED SIGNATORY** for my company, _____, I verify the above named employee has a legitimate need for a KCI Airport-issued ID badge / access media.

_____

Print Authorized Signatory's Name | Authorized Signature (Attachment 2 on File) | Date

_____

Authorized Signatory's E-Mail Address | Authorized Signatory's Work Telephone

AIRPORT ID OFFICE USE ONLY

If identification badge holder will be AOA Movement or Non-Movement privileged, applicant must present a valid, state-issued driver's license.

State of Issue:_____ Operator's License No:_____Expiration:_____/_____/_____

Issued Badge #:_____ Date of Issue:_____ Expiration:_____

Verified By:_____Date:_____
(Signature)

ID Badge Deactivation Date:_____Reason:_____
(Lost, Damaged, Stolen, Name Change)

Deactivation Date & Note Entered Into Badging System:_____
(Date of Entry) (Initials)

Badge was UNINTENTIONALLY damaged, a replacement badge was issued at no charge to the badge holder.

_____ _____
(Replacement Badge Number) (Date) (Initials)

Was $50.00 or $100.00 fee collected for badge not returned, expired, or lost?_____Was receipt given?_____

Deactivated By:_____
(Signature)

Badge Returned: Yes____ No_____ Was a receipt given? _____ Receipt #_____ Initials_____

If an individual KCI Airport badge holder experiences multiple unintentional damaged badges between badge renewals, the ID Office Trusted Agent will simply attach an additional Attachment 10 form page 4 of 4 to the individual's paperwork on file for each occurrence.

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STEP-BY-STEP PROCEDURES FOR THE COMPLETION OF THE KCI AIRPORT ID BADGE / PROXIMITY CARD APPLICATION (ATTACHMENT 10)

NEW BADGES

All applications and signatures must be ORIGINALS. Copies will not be accepted.
Once the KCI Airport ID Badge Application is signed by the Authorized Signatory, the individual has 5 working days to respond to the ID Office to obtain a badge.

1. Print the employer's name in the upper **left-hand** corner of the Attachment 10 form. If the application is for a **contractor**, please write the employer name in the upper left-**hand** corner and on the upper **right-hand** corner the company the contractor actually works for. (Example: KCAD Engineering – Loch Sand Construction)

2. When an employee reports to the ID Office, Attachments 10, 7, and 1 are required upon arrival. The employee must present 2 forms of identification; one must be a government issued ID with a photo. The employee must also present the **ORIGINAL** documents used to provide identity and work authorization on page 2 of the Attachment 10 form.

3. "New" will need to be circled on the Attachment 10.

4. The employee's last, first, and middle name should be written legibly on the Attachment 10. List the employee's full initials. If no middle name, please indicate so. Provide any former or other names.

5. Fill in the COMPLETE street address, city, state, zip code and home telephone number. Circle either MALE or FEMALE.

6. The Address Country, Place of Birth Country, and Citizenship Country codes need to be listed. (Please refer to the NCIC 2-Character Abbreviations handout.)

7. List the COMPLETE Social Security Number. (9 digits; one number per box)

8. Fill in the COMPLETE date of birth. (MMDDYYY; one number per box)

9. For individuals who are not U.S. citizens, provide the Alien Registration Number (9 digits; no dashes) or the I-94 Arrival / Departure Form Number (11 digits; no dashes).

10. For individuals who hold a non-immigrant visa, provide the visa control number, which appears in the top right-hand corner of the visa and is labeled "Control Number".

11. Individuals who are U.S. citizens board abroad or naturalized U.S. citizens, one of three documents can be used. Passport: copy the correct 9-digit number listed in the upper right-hand corner of the passport. Also enter the 2-character country code from where the passport was issued. Or a Certificate of Naturalization may be used. List the Certificate of Naturalization Number (9 digits; no dashes). This number appears on the right side of the document and may be called the ARN or INS number. Or a Certification of Birth Abroad may be used. List the Form DS-1350 or 10-digit document number, which appears in the top right-hand corner of the document. Precede the 10-digit number with DS. For example, DS 1234567890. Do not include dashes.

12. Circle the Type of Badge (**Permanent**, **Contractor**, **and Temporary**) that is requested for the employee.

13. Enter the COMPLETE Company Name. For example, American Airlines – Overhaul Base, or American Airlines – Terminal, or KCAD Field Maintenance.

14. Enter the Contractor Name, **if applicable** and the Project Number. For example, KCAD Engineering – Loch Sand Construction (as listed on page 1 of 4). Project Number 1234.

15. Company Selected Door Category Access is required for access to various doors and post gates your employees use in the course of their duties. (Refer to the Attachment 10 Door Category Access Codes handout.) For cargo employees, always indicate Post 1.

16. Access Level indicates where the employee needs to go and have access to in the course of their duties. CHECK ONLY ONE BOX.

17. Additional Authorities indicates other privileges and access the employee may need to perform his / her job. CHECK ALL THAT APPLY. When selecting AOA Non-movement or AOA movement, the OLN (Operator's License Number), State issued, and Expiration date need to be completed for all employees who are receiving this authority. **Authorized to Escort**

18. If the individual applying for a KCI Airport-issued ID Badge / Proximity Card has an operational need to access the US Customs facility, Terminal C, Gate 90, check the "CBP FIS Authorization" under additional authorities. BEFORE the individual reports to the ID Office they must stop by the US Customs office to have one of the Customs Officers sign and date the Attachment 10 form. Individuals must show proof of identity. The US Customs Office is located in Terminal C at Gate 90 and is open Sunday through Saturday from 12:00p.m. to 8:00p.m. Their telephone number is 816-243-3676.

19. **Identity and Work Authorization**

Original identity and work authorization documents must be presented at the ID Office for inspection, authentication, and copying.

20. The ID Office Trusted Agents will verify the acceptable original documents for authenticity, list the type of document(s), document number(s), and list their OWN name as the individual verifying the documents. The ID Office Trusted Agents will make copies of the identity and employment eligibility documents and staple the copies to the Attachment 10 document.

21. Line 1 is used to establish BOTH Identity and Employment Eligibility. In most cases, a passport is used. Please refer to the Identity & Work Authorization Handout, LIST A for other acceptable documents.

22. Line 2 and line 3 are used to establish Identity. In most cases, a valid driver's license and Social Security Card are used. Please refer to the Identity & Work Authorization Handout, LIST B for other acceptable documents.

23. The employee needs to read the top paragraph on page 3, PRINT FULL NAME, SIGN, and DATE the application. The employee needs to provide his / her Social Security Number (9 digits; no dashes) and Date of Birth (MMDDYYY).

24. The employee needs to read the "Privacy Act Notice" on page 3, PRINT FULL NAME, SIGN, and DATE the application.

25. The line indicating, "As an authorized signatory for my employer..." should be completed with THE SIGNATORY'S COMPANY NAME.

26. The **authorized signatory** should PRINT FULL NAME, SIGN and DATE the application.

27. The **authorized signatory** should print his or her **own** e-mail address and list their work telephone number. The ID Office may need to contact the authorized signatory.

28. Page 4 is for Airport ID Office use only.

Once the KCI Airport ID Badge Application is signed by the Authorized Signatory, the individual has 5 working days to respond to the ID Office to obtain a badge.

If you have any questions when completing a KCI Airport ID / Proximity Card Application (Attachment 10), Please contact Robin McDaniel-Beck, ID Office Supervisor at 243-5105 or via e-mail at: Robin.McDaniel-Beck@kcmo.org.

Revised March 2018

STEP-BY-STEP PROCEDURES FOR THE COMPLETION OF THE KCI AIRPORT ID BADGE / PROXIMITY CARD APPLICATION (ATTACHMENT 10)

RENEWAL, LOST, DAMAGED, BADGES, NAME CHANGE and/or ADDITIONAL CATEGORY

All applications and signatures must be ORIGINALS. Copies will not be accepted.

1. Print the employer's name in the upper **left-hand** corner of the Attachment 10 form. If the application is for a **contractor,** please write the employer name in the upper left-**hand** corner and on the upper **right-hand** corner the company the contractor actually works for. (Example: KCAD Engineering – Loch Sand Construction)

2. When an employee reports to the ID Office to RENEW their badge, obtain another badge because the badge was LOST or DAMAGED, or due to a NAME CHANGE or ADDITIONAL CATEGORY needed, an original Attachment 10 is required upon arrival. The employee must present 2 forms of identification; one must be a government issued ID with a photo. The employee must also present the ORIGINAL documents used to provide identity and work authorization on page 2 of the Attachment 10 form.

3. Circle the appropriate reason for a badge request; i.e., RENEWAL, LOST, DAMAGED, NAME CHANGE, ADDITIONAL CATEGORY.

4. The employee's last, first, and middle name should be written legibly on the Attachment 10. List the employee's full initials. If no middle name, please indicate so. Provide any former or other names.

5. Fill in the COMPLETE street address, city, state, zip code and home telephone number. Circle either MALE or FEMALE.

6. The Address Country, Place of Birth Country, and Citizenship Country codes need to be listed. (Please refer to the NCIC 2-Character Abbreviations handout.)

7. List the COMPLETE Social Security Number. (9 digits; one number per box)

8. Fill in the COMPLETE date of birth. (MMDDYYY; one number per box)

9. For individuals who are not U.S. citizens, provide the Alien Registration Number (9 digits; no dashes) or the I-94 Arrival / Departure Form Number (11 digits; no dashes).

10. For individuals who hold a non-immigrant visa, provide the visa control number, which appears in the top right-hand corner of the visa and is labeled "Control Number".

11. Individuals who are U.S. citizens board abroad or naturalized U.S. citizens, one of three documents can be used. Passport: copy the correct 9-digit number listed in the upper right-hand corner of the passport. Also enter the 2-character country code from where the passport was issued. Or a Certificate of Naturalization may be used. List the Certificate of Naturalization Number (9 digits; no dashes). This number appears on the right side of the document and may be called the ARN or INS number. Or a Certification of Birth Abroad may be used. List the Form DS-1350 or 10-digit document number, which appears in the top right-hand corner of the document. Precede the 10-digit number with DS. For example, DS 1234567890. Do not include dashes.

12. Circle the Type of Badge (**Permanent**, **Contractor**, **and Temporary**) that is requested for the employee.

13. Enter the COMPLETE Company Name. For example, American Airlines – Overhaul Base, or American Airlines – Terminal, or KCAD Field Maintenance.

14. Enter the Contractor Name, **if applicable** and the Project Number. For example, KCAD Engineering – Loch Sand Construction. Project Number 1234.

15. Company Selected Door Category Access is required for access to various doors and post gates your employees use in the course of their duties. (Refer to the Attachment 10 Door Category Access Codes handout.) For cargo employees, always indicate Post 1.

16. Access Level indicates where the employee needs to go and have access to in the course of their duties. CHECK ONLY ONE BOX.

17. Additional Authorities indicates other privileges and access the employee may need to perform his / her job. CHECK ALL THAT APPLY.

18. If the individual applying for a KCI Airport-issued ID Badge / Proximity Card has an operational need to access the US Customs facility, Terminal C, Gate 90, check the "CBP FIS Authorization" under additional authorities. BEFORE the individual reports to the ID Office they must stop by the US Customs office to have one of the Customs Officers sign and date the Attachment 10 form. Individuals must show proof of identity. The US Customs Office is located in Terminal C at Gate 90 and is open Sunday through Saturday from 12:00p.m. to 8:00p.m.

19. OLN (Operator's License Number), State issued, and Expiration date need to be completed for all employees who are receiving NON-MOVEMENT or MOVEMENT AREA airfield driving privileges.

Identity and Work Authorization

Original identity and work authorization documents must be presented at the ID Office for inspection, authentication, and copying.

20. The Identity and Work Authorization box **DOES** need to be completed for **Renewals, Lost, or Damaged Badges, Name Changes and/or Additional Categories requested.**

21. The ID Office Trusted Agents verify the acceptable original documents for authenticity, list the type of document(s), document number(s), and list their OWN name as the individual verifying the documents. The ID Office Trusted Agents will make copies of the identity and employment eligibility documents and staple the copies to the Attachment 10 document.

22. Line 1 is used to establish BOTH Identity and Employment Eligibility. In most cases, a passport is used. Please refer to the Identity & Work Authorization Handout, LIST A for other acceptable documents.

23. Line 2 and line 3 are used to establish Identity. In most cases, a valid driver's license and Social Security Card are used. Please refer to the Identity & Work Authorization Handout, LIST B for other acceptable documents.

24. The employee needs to read the top paragraph on page 3, PRINT FULL NAME, SIGN, and DATE the application. The employee needs to provide his / her Social Security Number (9 digits; no dashes) and Date of Birth (MMDDYYY).

25. The employee needs to read the "Privacy Act Notice" on page 3, PRINT FULL NAME, SIGN, and DATE the application.

26. The line indicating, "As an authorized signatory for my employer..." should be completed with THE SIGNATORY'S COMPANY NAME.

27. The authorized signatory should PRINT FULL NAME, SIGN and DATE the application.

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Revised March 2018

LISTS OF ACCEPTABLE DOCUMENTS

All documents must be unexpired

LIST A Documents that Establish Both Identity and Employment Authorization	OR	LIST B Documents that Establish Identity	AND	LIST C Documents that Establish Employment Authorization
1. U.S. Passport or U.S. Passport Card		1. Driver's license or ID card issued by a State or outlying possession of the United States provided it contains a photograph or information such as name, date of birth, gender, height, eye color, and address		1. Social Security Account Number card other than one that specifies on the face that the issuance of the card does not authorize employment in the United States
2. Permanent Resident Card or Alien Registration Receipt Card (Form I-551)				2. Certification of Birth Abroad issued by the Department of State (Form FS-545)
3. Foreign passport that contains a temporary I-551 stamp or temporary I-551 printed notation on a machine-readable immigrant visa		2. ID card issued by federal, state or local government agencies or entities, provided it contains a photograph or information such as name, date of birth, gender, height, eye color, and address		3. Certification of Report of Birth issued by the Department of State (Form DS-1350)
4. Employment Authorization Document that contains a photograph (Form I-766)		3. School ID card with a photograph		
		4. Voter's registration card		4. Original or certified copy of birth certificate issued by a State, county, municipal authority, or territory of the United States bearing an official seal
5. In the case of a nonimmigrant alien authorized to work for a specific employer incident to status, a foreign passport with Form I-94 or Form I-94A bearing the same name as the passport and containing an endorsement of the alien's nonimmigrant status, as long as the period of endorsement has not yet expired and the proposed employment is not in conflict with any restrictions or limitations identified on the form		5. U.S. Military card or draft record		
		6. Military dependent's ID card		
		7. U.S. Coast Guard Merchant Mariner Card		5. Native American tribal document
		8. Native American tribal document		6. U.S. Citizen ID Card (Form I-197)
		9. Driver's license issued by a Canadian government authority		
6. Passport from the Federated States of Micronesia (FSM) or the Republic of the Marshall Islands (RMI) with Form I-94 or Form I-94A indicating nonimmigrant admission under the Compact of Free Association Between the United States and the FSM or RMI		**For persons under age 18 who are unable to present a document listed above:**		7. Identification Card for Use of Resident Citizen in the United States (Form I-179)
		10. School record or report card		8. Employment authorization document issued by the Department of Homeland Security
		11. Clinic, doctor, or hospital record		
		12. Day-care or nursery school record		

Illustrations of many of these documents appear in Part 8 of the Handbook for Employers (M-274)

NCIC 2-Character Abbreviations
for
Place of Birth Country / Citizenship Code Country / Passport Country

Code:	Description:	Code:	Description:	Code:	Description:	Code:	Description:
AA	Albania	CC	Cuba	EU	Ecuador	IE [2]	Ireland
AB	Alberta	CD [1]	Canada	EY	Egypt	II	India
AD	Andorra	CE	Campeche	EZ	Czech Republic	IL	Illinois
AE	Anguilla	CF	Chad	FA	Falkland Islands	IM	Madeira Islands
AF	Afghanistan	CG	Caroline Islands	FC	Fond du Lac	IN	Indiana
AG	Aguascalientes	CH	Chihuahua	FD	Finland	IO	Indonesia
AH	Ashmore & Cartier Islands	CI	Chiapas	FG	French Guiana	IQ	Iraq
AI	Antigua & Barbuda	CJ	Cambodia	FJ	Fiji	IR	Iran
AJ	Aruba	CL	Colima	FL	Florida	IS	Israel
AK	Alaska	CM	Cameroon	FN	France	IT	Italy
AL	Alabama	CO	Colorado	FO	Faroe Islands	IU	Niue
AM	American Samoa	CP	Cayman Islands	FP	French Polynesia	IW	Iowa Tribe
AN	Algeria	CQ	Chile	FR	French Southern & Antartic Lands	IX	Menominee
AO	Angola	CR	Costa Rica	FS	Federated States of Micronesia	IY	Cote d'Ivoire (Ivory Coast)
AP	Armenia	CS	Cyprus	FX	Sac & Fox	JA	Japan
AQ	Azores Islands	CT	Connecticut	GA	Georgia	JE	Jersey
AR	Arkansas	CU	Coahuila	GB	Gabon	JI	Johnston Island
AS	Australia	CV	Cape Verde Islands	GC	Greece	JL	Jalisco
AT	Argentina	CW	Central African Republic	GD	Georgia	JM	Jamaica
AU	Austria	CY	Ceylon (Now Sri Lanka)	GE	Germany	JN	Jan Mayen
AV	Azerbaijan	CZ	Canal Zone	GF	Guernsey	JO	Jordan
AX	Apache Tribe	DA	Cheyenne & Arapaho Tribes	GG	Ghana	JR	Jarvis Island
AZ	Arizona	DB	Clipperton Island	GI	Guinea	JU	Juan de Nova Island
BA	Baja California (Northern Section)	DC	District of Columbia	GJ	Grenada	KB	Gilbert Islands (Now Kiribati)
BB	Barbados	DD	Cocos Islands	GK	Gambia, The	KC	Croatia
BC	British Columbia	DE	Delaware	GM	Guam	KE	Kenya
BD	Bahamas, The	DF	Distrito Federal (Mexico, D.F.)	GN	Greenland	KH	Manahiki Island
BE	Bahrain/Bahrein	DG	Comoros (or Comoros Islands)	GO	Glorioso Islands	KI	Kingman Reef
BF	Bassas Da India	DH	Benin (formally Dahomey)	GP	Guadeloupe	KK	Kickapoo Tribe
BG	Belgium	DI	Cook Islands	GR	Guerrero	KN	North Korea
BH	Belize	DJ	Coral Sea Islands	GS	South Georgia & South Sandwich Islands	KO	South Korea
BI	Burundi	DK	Denmark	GT	Guatemala	KP	Shakopee
BJ	Baja California (Southern Section)	DL	Devil's Lake Sioux Tribe	GU	Guanajuato	KS	Kansas
BK	Baker Island	DM	Dominica	GY	Guyana	KT	Kazakhstan
BL	Bangladesh	DN	Djibouti	GZ	Gaza	KU	Kuwait
BM	Bermuda	DO	Durango	HD	Honduras	KW	Kiowa
BN	Bhutan	DP	Comanche Nation	HE	Heard Island & McDonald Island	KY	Kentucky
BO	British Indian Ocean Territory	DR	Dominican Republic	HI	Hawaii	KZ	Kyrgyzstan
BP	Bosnia & Hercegovenia	DS	Miami Tribe	HK	Hong Kong	LA	Louisiana
BQ	Bouvet Island (Norwegian Territory)	DT	Muscogee (Creek) Tribe	HL	Hidalgo	LB	Liberia
BR	Burma	DV	Seneca-Cayuga Tribes	HN	New Hebrides (now Vanuatu)	LC	Mille Lacs
BS	British Solomon Islands (now Solomon Islands)	DW	Citizen Band Pottawatomie Tribe	HO	Howland Island	LD	Moldovia
BT	Botswana	EE	Absentee Shawnee	HR	Christmas Island	LE	Lesotho
BU	Bulgaria	EK	Equatorial Guinea	HS	Saint Helena	LF	Slovakia
BV	Bolivia	EL	El Salvador	HT	Haiti	LH	Lithuania
BW	Balearic Islands	EN	England	HU	Hungary	LI	Liechtenstein
BX	Brunei	EO	Ethiopia	IA	Iowa	LL	Leech Lake Band of Chippewa
BY	Brazil	ER	Europa Island	IB	Isle of Man	LN	Lebanon
CA	California	ES	Estonia	IC	Iceland	LO	Slovenia
CB	Colombia	ET	Eretria	ID	Idaho	LP	Lac du Flambeau Band of Lake Superior Chippewa

NCIC 2-Character Abbreviations
for
Place of Birth Country / Citizenship Code Country / Passport Country

Code:	Description:	Code:	Description:	Code:	Description:	Code:	Description:
LS	Laos	NT	Northwest Territories	RI	Rhode Island	TU	Tunisia
LT	Latvia	NU	Nicaragua	RL	Red Lake	TV	Ellice Islands
LU	Saint Lucia	NV	Nevada	RR	Montserrat	TW	Taiwan, Republic of China
LX	Luxembourg	NW	Norway	RS	Spanish Sahara	TX	Texas
LY	Libya	NX	Bonaire (Netherlands Antilles)	RU	Romania	TY	Turkey
MA	Massachusetts	NY	New York	RV	Socialist Republic of Vietnam	TZ	Tanzania, United Republic of
MB	Manitoba	NZ	New Zealand	RW	Rwanda	UC	Turtle Mtn. Band of Chipewa
MC	Michoacan	OA	Oaxaca	RY	Republic of Yemen	UG	Uganda
MD	Maryland	OC	Macao	SA	Sierre Leone	UK	Ukraine
ME	Maine	OF	Norfolk Island	SB	Saudi Arabia	UM	Mauritius
MF	Malawi	OG	Osage Nation	SC	South Carolina	UR	Turkmenistan
MG	Mongolia	OH	Ohio	SD	South Dakota	US	United States of America
MH	Marshall Islands	OI	Okinawa	SE	Seychelles	UT	Utah
MI	Michigan	OK	Oklahoma	SF	South Africa	UV	Burkina Faso
MJ	Monaco	OM	Oman	SG	Senegal	UY	Uruguay
MK	Mariana Islands	ON	Ontario	SH	San Marino	UZ	Uzbekistan
ML	Mali	OO	Otoe-Missouria Tribe	SI	Sinaloa	VA	Virginia
MM [3]	Mexico	OR	Oregon	SJ	Namibia	VB	British Virgin Islands
MN	Minnesota	OS	Oglala Sioux	SK	Seminole Nation	VC	Veracruz
MO	Missouri	OT	Oneida Tribe of Indians of Wisconsin	SL	San Luis Potosi	VI	U.S. Virgin Islands
MP	Madagascar	PA	Pennsylvania	SM	Somalia	VL	Navassa Island
MQ	Morocco	PB	Puebla	SN	Saskatchewan	VT	Vermont
MR	Morelos	PC	Pitcairn, Henderson, Ducie, & Oeno Islands	SO	Sonora	VV	Saint Vincent & the Grenadines
MS	Mississippi	PD	Palau, Rebublic of	SP	Spain	VY	Vatican City
MT	Montana	PE	Prince Edward Island	SQ	Sweden	VZ	Venezuela
MU	Mauritania	PF	Parcel Islands	SR	Singapore	WA	Washington
MV	Maldives	PG	Guinea-Bissau	SS	Scotland	WB	West Bank
MW	Midway Islands	PI	Philippines	SU	Sudan	WD	Wyandotte Tribe
MX	Mexico (State)	PK	Pakistan	SV	Svalbard	WE	White Earth
MY	Malta	PL	Palmyra Atoll	SW	Swaziland	WF	Wallis & Futuna
MZ	Malaysia	PM	Panama	SY	Syria	WI	Wisconsin
NA	Nayarit	PN	Ponca Tribe	SZ	Switzerland	WK	Wake Island
NB	Nebraska	PO	Poland	TA	Tamaulipas	WL	Wales
NC	North Carolina	PQ	Quebec	TB	Tabasco	WN	West Indies
ND	North Dakota	PR	Puerto Rico	TC	Trucial States (Now United Arab Emirates)	WS	Western Samoa
NE	Holland (Netherlands)	PS	Saint Pierre & Miquelon	TD	Trust Territory of the Pacific Islands	WT	Wichita Tribe
NF	Newfoundland	PT	Portugal	TE	Spratly Islands	WV	West Virginia
NG	Nigeria	PU	Peru	TF	Tuamotu Archipelago	WY	Wyoming
NH	New Hampshire	PV	Paraquay	TG	Tonga	XX	Unknown Place of Birth
NI	Northern Ireland	PW	Pawnee Tribe	TH	Thailand	YG	Yugoslavia
NJ	New Jersey	QA	Qatar	TJ	Tajikistan	YO	Mayotte
NK	New Brunswick	QR	Quintana Roo	TK	Tokelau	YT	Yukon (Territory)
NL	Nuevo Leon	QU	Queretaro	TL	Tlaxcala	YU	Yucatan
NM	New Mexico	RA	Russia	TM	Tromelin Island	YY	All Others
NN	Nigeria	RB	Republic of Congo	TN	Tennessee	ZA	Zacatecas
NO	New Guinea	RC	People's Republic of China	TO	Togo	ZB	Martinique
NP	Nepal	RE	Reunion	TP	Sao Tome & Principe	ZC	Surinam
NQ	New Caledonia	RF	Russian Federation	TR	Turks & Calcos Islands	ZD	Macedonia
NR	Nauru	RG	Gibraltar	TS	Nevis & Saint Christopher "Kitts"	ZI	Canary Islands
NS	Nova Scotia	RH	Rhodesia (now Zimbabwe)	TT	Trinidad & Tobago	ZM	Zambia

NCIC 2-Character Abbreviations
for
Place of Birth Country / Citizenship Code Country / Passport Country

Code:	Description:	Code:	Description:	Code:	Description:	Code:	Description:
ZO	Mozambique						
ZR	Congo Kinshasa, now Zaire						

[1] See separate list of Canadian Provinces; Use code CD only when province is unknown.
[2] Does not include Northern Ireland; See Northern Ireland contained in main listing.
[3] See separate list of Mexican States; Use code MM only when state is unknown.

Canadian Provinces

Code:	Province:	Code:	Province:	Code:	Province:	Code:	Province:
AB	Alberta	NF	Newfoundland	ON	Ontario	YT	Yukon Territory
BC	British Columbia	NK	New Brunswick	PE	Prince Edward Island		
CN	Canada	NS	Nova Scotia	PQ	Quebec		
MB	Manitoba	NT	Northwest Territories	SN	Saskatchewan		

Mexican States

Code:	Description:	Code:	Description:	Code:	Description:	Code:	Description:
AG	Aguascalientes	DO	Durango	NL	Nuevo Leon	TB	Tabasco
BA	Baja California	GR	Guerrero	OA	Oaxaca	TL	Tlaxcala
BJ	Baja California Sur	GU	Guanajuato	PB	Puebla	VC	Veracruz
CE	Campeche	HL	Hidalgo	QR	Quintana Roo	YU	Yucatan
CH	Chihuahua	JL	Jalisco	QU	Queretaro	ZA	Zacatecus
CI	Chiapas	MC	Michoacan	SI	Sinaloa		
CL	Colima	MR	Morelos	SL	San Luis Potosi		
CU	Coahuila	MX	Mexico (State)	SO	Sonora		
DF	Distrito Federal	NA	Nayarit	TA	Tamaulipas		

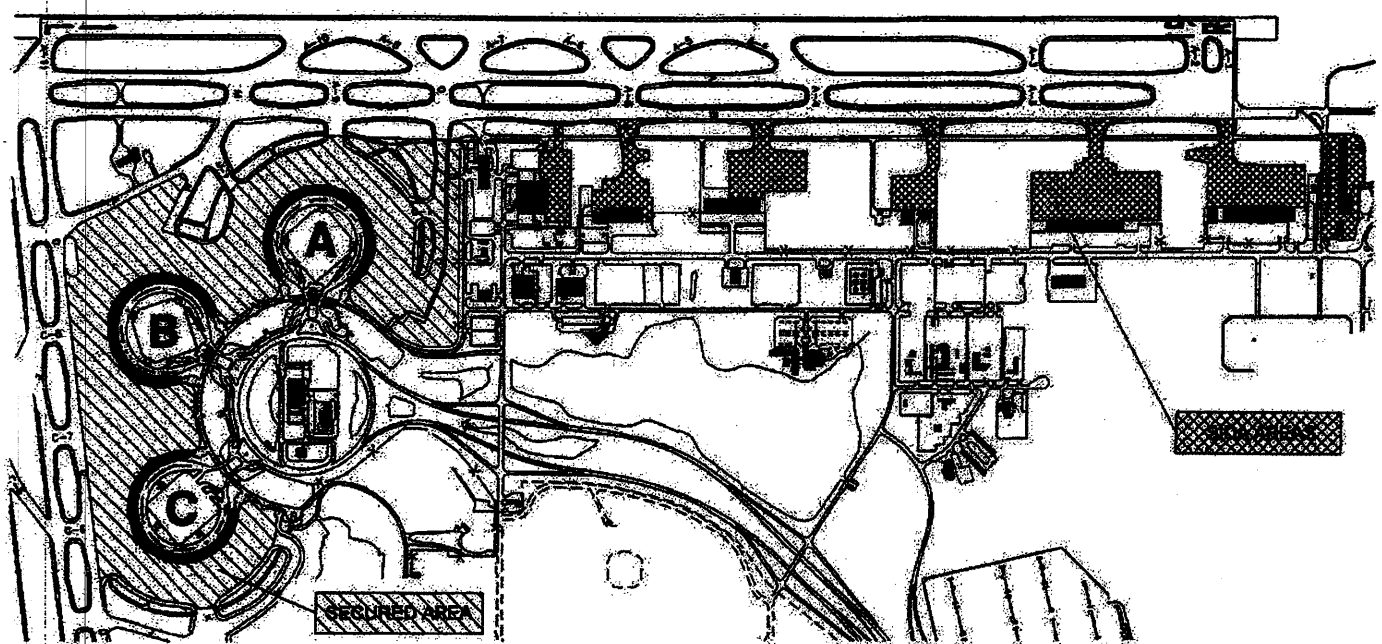
CERTIFICATE
FOR
REASSIGNED OR TEMPORARILY ASSIGNED
AIRCRAFT OPERATOR & TENANT EMPLOYEES

Kansas City International Airport (MCI)

I _____, successfully completed the Secured Area/SIDA training curriculum approved by the TSA, in accordance with TSR Part 1542.213 at _____ Airport. This can be verified by the attached document showing proof of training or by calling the following:

Training Received From: _____

Telephone Number: _____



Secured Area – The boundaries of the Secured Area at MCI include all the pavement areas between the terminals, aircraft operator ramps adjacent to the terminal buildings, and extend out to where the active taxiways begin. The Secured Area includes a small portion of taxiways and access roads adjacent to vehicle gates 1 and 2. The Secured Area also includes all areas beyond the access points on the passenger service level with access to the ramp and includes all baggage make-up areas.

SIDA – The SIDA at MCI has the same boundaries as the Secured Area. It also includes the ramp areas of the United States Postal Service, cargo facilities, FBO, and Aviation Field Maintenance located north of the terminal buildings.

FOR LAW ENFORCEMENT PERSONNEL (LEP) ASSISANCE IN SECURITY MATTERS CALL 243-4000.

Signature: _____

Date: _____

TSA APPROVED
Angela Buski
DATE SEP 25 2014

Rev.8/18/14

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TENANT & CONTRACTOR LETTER OF AGREEMENT

FOR

MCI AIRPORT IDENTIFICATION / ACCESS BADGES

This agreement is between the airport tenant and the primary contractor. The primary contractor understands that the identification / access badges must be returned to the Airport Identification Office (Airport ID Office) the next working day upon completion of the contract or prior to badge expiration. A deposit of $100.00 per badge is required. The deposit will be returned upon completion of contract and after all badges have been returned. There will be a $100.00 deduction from said deposit for each unreturned badge. At which time, any deposits made by a subcontractor will be reimbursed to the primary contractor. All badges must be renewed prior to the expiration date.

The construction contracts for the Engineering Division (Kansas City Aviation Department) will have final payments withheld in lieu of badge deposits. Upon completion of contract, a charge of $100.00 for each unreturned badge will be deducted from the final payment.

The primary contractor also understands that when anyone with an identification / access badge is terminated for any reason, they must immediately notify the Airport ID Office at 243-5211 or 5105 (during normal business hours) or the Airport Police at 243-4000. The badge for this individual will be returned to the Airport ID Office the next working day. The numbers above should also be called when a badge is lost or stolen.

Tenant / KCAD_____

Printed Name_____

Authorized Signature_____

Title_____

Telephone Number_____

Date_____

Contractor Name_____

Printed Name_____

Signature_____

Title_____

Telephone Number_____

Date_____

Project #_____

Expected Completion Date_____

Rev. 8/18/14

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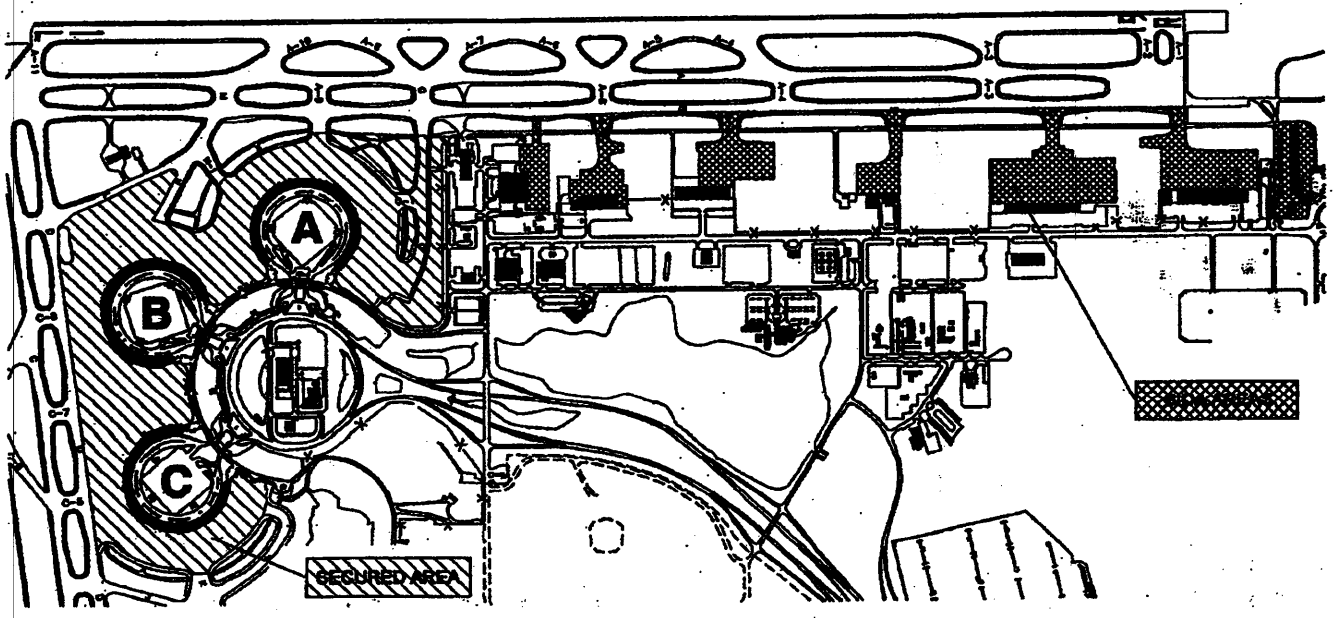
Attachment 13

TSA APPROVED

DATE SEP 25 2014

Secured Area/SIDA Boundaries

Kansas City International Airport (MCI)



Secured Area – The boundaries of the Secured Area at MCI include all the pavement areas between the terminals, aircraft operator ramps adjacent to the terminal buildings, and extend out to where the active taxiways begin. The Secured Area includes a small portion of taxiways and access roads adjacent to vehicle gates 1 and 2. The Secured Area also includes all areas beyond the access points on the passenger service level with access to the ramp and includes all baggage make-up areas.

SIDA – The SIDA at MCI has the same boundaries as the Secured Area. It also includes the ramp areas of the United States Postal Service, cargo facilities, FBO, and Aviation Field Maintenance located north of the terminal buildings.

Display – All persons within the Secured Area or SIDA of MCI shall display on their person, at all times while in the area, a valid identification badge issued or approved by MCI. Individuals in the Secured Area or SIDA must continuously display the identification badge issued to that individual on the outermost garment, above waist level, or be under escort by a properly badged individual.

Escort Procedures – Persons who do not have unescorted access and have a need to enter the Secured Area, must be under "positive" escort by a person who has a valid authorized identification/access badge for the Secured Area. "Positive" escort means the individual providing the escort must be in the proximity of the individual(s) being escorted to the extent capable of controlling the movement of the individual(s) and ensure the individual(s) under escort is engaged in only activities for which escorted access was granted. Should the individual(s) attempt to engage in unauthorized activity, the person providing the escort should conduct a verbal challenge. Should the person providing the escort become endangered, or the escorted individual(s) are unresponsive to the verbal challenge, the ACC should be notified immediately by radio or telephone. ACC will dispatch an Airport Police Officer to the reported location for appropriate action and follow-up.

No person may be escorted onto the Secured Area or SIDA who has been granted unescorted access authority and does not have their badge in their possession.

TSA APPROVED
Todd A. Hurn
DATE JUL 13 2006

Rev.7/13/2006

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011500 - AIRPORT SECURITY CONTROL PROCEDURES

KANSAS CITY INTERNATIONAL AIRPORT (KCI)

Term Definitions

Air Operations Area (AOA) means a portion of an airport, specified in the airport security program, in which security measures specified in Transportation Security Regulations (TSR) Part 1542 are carried out. This area includes aircraft movement areas, aircraft parking areas, loading ramps, and safety areas, for use by aircraft regulated under TSR Part 1544 or 1546, and any adjacent areas (such as general aviation areas) that are not separated by adequate security systems, measures, or procedures. This area does not include the Secured Area.

Aircraft Operator means a person who uses, causes to be used, or authorizes to be used an aircraft, with or without the right of legal control (as owner, lessee, or otherwise), for the purpose of air navigation including the piloting of aircraft, or on any part of the surface of an airport. In specific parts or sections, "aircraft operator" is used to refer to specific types of operators as described in those parts or sections.

Airport Operator means a person that operates an airport serving an aircraft operator or a foreign air carrier required to have a security program under TSR Part 1544 or 1546.

Airport Security Program means a security program approved by TSA under TSR 1542.101.

Airport Tenant means any person, other than an aircraft operator or foreign air carrier that has a security program under TSR Part 1544 or 1546 that has an agreement with the airport operator to conduct business on airport property.

Airport Tenant Security Program means the agreement between the airport operator and an airport tenant that specifies the measures by which the tenant will perform security functions, which is approved by TSA under 152.113.

Cargo means property tendered for air transportation accounted for on an air waybill. All accompanied commercial courier consignments, whether or not accounted for on an air waybill, are also classified as cargo. Aircraft operator security programs further define the term "cargo".

Checked baggage means property tendered by or on behalf of a passenger and accepted by an aircraft operator for transport, which is inaccessible to passengers during flight. Accompanied commercial courier consignments are not classified as checked baggage.

Escort means to accompany or maintain constant visual contact with an individual who does not have unescorted access authority into or within a Secured Area or SIDA.

Exclusive area means any portion of a Secured Area, AOA or SIDA, including individual access points, for which an aircraft operator or foreign air carrier that has a security program under TSR Part 1544 or 1546, has assumed responsibility under TSR Part 1542.111 of said chapter.

Exclusive area agreement means an agreement between the airport operator and an aircraft operator or a foreign air carrier that has a security program under TSR Parts 1544 or 1546 that permits such an aircraft operator or foreign air carrier to assume responsibility for specified security measures in accordance with TSR Part 1542.111 of said chapter.

FAA means Federal Aviation Administration.

Screening function means the inspection of individuals and property for weapons, explosives, and incendiaries.

Screening location means each site at which individuals are inspected for the presence of weapons, explosives, and incendiaries.

Secured area means a portion of an airport, specified in the airport security program, in which certain security measures specified in TSR Part 1542 are carried out. This area is where aircraft operators and foreign air carriers that have a security program under TSR Part 1544 or 1546 enplane and deplane passengers and sort and load baggage and any adjacent areas that are not separated by adequate security measures.

Security Identification Display Area (SIDA) means a portion of an airport, specified in the airport security program, in which security measures specified in TSR Part 1542 are carried out. This area includes the Secured Area and may include other areas of the airport.

Sterile area means a portion of an airport defined in the airport security program that provides passengers access to boarding aircraft and to which the access generally is controlled by TSA or by an aircraft operator under TSR Part 1544 or a foreign air carrier under TSR Part 1546, through the screening of persons and property.

Transportation Security Administration (TSA) means the Transportation Security Administration.

Transportation Security Regulation TSRs (TSR) means the regulations issued by the Transportation Security Administration, in Title 49 Code of Federal Regulations, Chapter XII, which includes parts 1500 through 1699.

Unescorted access authority means the authority granted by an airport operator, aircraft operator, foreign air carrier, or airport tenant authorized under TSR Part 1542, 1544, or 1546, to individuals to gain entry to, and be present without an escort in, Secured Areas and SIDA's of airports.

AIRPORT SECURITY RESPONSIBILITIES

A. Tenant / Contractor Responsibility

All Airport Tenants and KCI Airport Contractors – Each tenant / contractor and employees are responsible for challenging unidentified persons and/or ground vehicles which are not displaying proper signage or identification medium in their respective areas, and promptly reporting such incidents to the Airport Police in accordance with the procedures in the KCI Airport Security Program.

Each tenant should immediately notify the Airport Operator when security-related facilities and equipment within their areas are malfunctioning or no longer adequate to perform the control function for which it was intended.

B. Individual Responsibility

Under the provisions of TSR 1540.101, individuals will be held accountable for all security violations described in TSR 1540.103, 1540.105 and the KCI Airport Security Program. Violators may be subject to civil and/or local penalties. No person may tamper or interfere with, compromise, modify, attempt to circumvent, or cause a person to tamper or interfere with, compromise, modify, or attempt to circumvent any security system, measure, or procedure implemented under TSR Part 1540 or the KCI Airport Security Program.

No person may enter or be present within, a Secured Area, AOA, SIDA or sterile area without complying with the systems, measures, or procedures being applied to control access to, or presence or movement in, such areas. No person may use, allow to be used, or cause to be used, any airport-issued or airport-approved identification medium that authorizes the access, presence, or movement of persons or vehicles in Secured Areas, AOAs, or SIDAs in any other manner than that for which it was issued by the appropriate authority under TSR Parts 1542, 1544, 1546 or the KCI Airport Security Program.

KCI will provide information regarding individual responsibilities to each employee granted unescorted access authority to the Secured Area, SIDA, and/or AOA. **(Attachment 1)**

C. Falsification

No person may make, or cause to be made any fraudulent or intentionally false statement in any application for any security program, access medium, or identification medium, or any amendment thereto, under TSR Part 1540 and the KCI Airport Security Program. No person may make, or cause to be made any fraudulent or intentionally false entry in any record or report that is kept, made, or used to show compliance or exercise any privileges under TSR Part 1540 or the KCI Airport Security Program. No person may make, or cause to be made any reproduction or alteration, for fraudulent purpose, of any report, record, security program, access medium, or identification medium under TSR Part 1540 and the KCI Airport Security Program.

All suspected or known violations listed above will be reported to the airport ASC as soon as possible. The ASC may notify the TSA for possible enforcement action.

AIRPORT SECURITY OPERATIONS

General – Through systems, measures, and procedures contained in the KCI Airport Security Program, KCI will ensure all of the Secured Area and AOA of the airport have adequate access control under the provisions of TSR Part 1542.207(b) and provide an overall level of security equal to the performance standards of TSR Part 1542.207(a). Access control for the Secured Area and AOA is a combination of either automated access for designated vehicle post gates, lock and chain for tenant and perimeter post gates or computerized Access Control System, lock and key for doors as described in the KCI Airport Security Program.

A. Secured Areas

Description – The Secured Area at KCI is where aircraft operators and foreign air carriers that have a security program under TSR Part 1542 or 1544 enplane and deplane passengers, sort and load baggage, and includes any adjacent areas that are not separated by adequate security systems, measures, or procedures. Boundaries of the Secured Area are recognized by fences/walls, buildings, controlled access points, CCTV (vehicle access points), pavement markings and warning signs. The boundaries of the Secured Area at KCI include all the pavement areas between the terminals, aircraft operator ramps adjacent to the terminal buildings, and then extend out to where the active taxiways begin. The Secured Area also includes all areas beyond the access points controlled under TSR Part 1542.207(b) including all baggage make-up areas and other areas identified in the Airport Security Program.

Access Control System

The computerized system, badging, and control monitoring process is operated by the Airport Identification Office and located in the Airport Police Building. Airport Police Customer Service Representatives are trained to operate the computer terminals and have the capability to delete the access authorization of any individual upon proper verification of a report of a lost or stolen badge or employee termination or change of authorization.

The system is a computer driven, software controlled, access system utilizing an encoded prox-type airport-issued identification/access badge to prevent unauthorized access through vehicle post gates leading to the Secured Area. Access is either denied or granted in accordance with criteria residing within the computer software. The system controls vehicle post gates with direct access to the Secured Area as well as other access points to portions of the AOA. Upon entering and exiting the post gate, all vehicles must stop and wait upon immediately passing through the gate to ensure the post gate is closed before proceeding and to preclude "tailgating" and/or unauthorized entry.

The access system identifies an encoded airport-issued identification/access badge when proxed at the card reader at vehicle post gate access points. The system is designed to allow access for one vehicle or connected train of vehicles at a time. The operation of the sliding gates involves the movement back and forth across the entrance. The sliding gate movement is no less than one foot per second, and closes in 15 seconds. An airport-issued identification/access badge must be proxed at the card reader for each vehicle.

KCI uses a special series of restricted keys and blank keys designed by the Best Lock Company. The keys and blank keys are not available to the public and are stamped with the statement “Duplication Prohibited”. Locks and keys for access points, except those controlled by tenants for their leaseholds, are controlled by the Aviation Department. The Aviation Department’s designated locksmith is charged with maintaining possession of all blank keys and padlocks, along with preparing them for use. The locksmith will cut keys as required and stamp them with a control number and an individual serial number. The control number identifies the lock or padlock they operate. The serial number is an individual key identification and identifies to whom the key was issued. The locksmith will also prepare padlocks for securing the AOA Perimeter post gates that are

not controlled by card readers. After the keys and padlocks are prepared, they will be charged out to the Airport ID Office. The Airport ID Office will then assume control, accountability, and responsibility of the keys and padlocks.

Key Custodian – An Authorized Signature Form, **Attachment 2**, must be on file in the ID Office prior to the issuance of any access control keys. The individuals listed on the form are designated as the Key Custodian and are authorized by the tenant, company or Aviation Department to request keys and/or padlocks. The Key Custodian must have a valid airport-issued identification/access badge authorized for the specific area of which the keys are requested.

Escort Procedures – Persons who do not have unescorted access authority and have a need to enter the Secured Area, must be under "positive" escort by a person who has a valid authorized identification/access badge for the Secured Area. "Positive" escort means the individual providing the escort must be in the proximity of the individual(s) being escorted to the extent capable of controlling the movement of the individual(s) and ensure the individual(s) under escort is engaged in only activities for which escorted access was granted. Should the individual(s) attempt to engage in unauthorized activity, the person providing the escort should conduct a verbal challenge. Should the person providing the escort become endangered, or the escorted individual(s) is unresponsive to the verbal challenge, ACC should be notified immediately by radio or telephone. ACC will dispatch an Airport Police Officer to the reported location for appropriate action and follow-up. ***No person may be escorted onto the Secured Area who has been granted unescorted access authority and does not have their badge in their possession. Secured Area media must be properly displayed at all times.***

Vehicle Identification – All vehicles operating on the Secured Area must be properly marked and lighted. It will be the driver's responsibility to ensure the vehicle is in compliance, violators will be denied access or removed.

- Markings – vehicles operating on the Secured Area be clearly marked with company name, symbols, words, and/or number so as to be easily identified as belonging to a particular tenant, organization, the City, or contractor.
- Lighting – all vehicles operating on the Secured Area will be lighted with an amber flashing or rotating beacon mounted on the uppermost part of the vehicle when possible and reasonable or equipped with lighting visible from all sides.

Personally-owned vehicles are not authorized on the Secured Area.

Access Media – ID badges for Secured Area access are issued by the Airport Identification Office after completion of a finger-print based Criminal History Records Check (CHRC), or Certification by the employer that they have completed the CHRC and after completion of a Security Threat Assessment (STA). ID badges serve as both access and identification indicating authorized access to specific areas on the Airport and are color-coded for definition.

B. Air Operations Area (AOA)

Description – the AOA at KCI is any other area within the perimeter fence that is not included in the Secured Area. Boundaries of the AOA are recognized by fences, buildings, controlled access points, pavement markings, and warning signs. The boundaries and pertinent features of the AOA at KCI include three runways, taxiways, ARFF, United States Postal Service, cargo ramp areas, General Aviation, north Aviation Field Maintenance Facility, and the American Airlines Aircraft Maintenance and Engineering Base.

Access Control System

Reference Secured Areas, Access Control System, Paragraphs 1-6. In addition, access control systems for the AOA include the following: Vehicle Post Gates not electronically controlled will be secured with chain and padlocks. Separate padlocks and key sets will be issued by the Airport ID Office to each organization requiring access to specific AOA post gates. These post gates may have one or any combination of padlocks on it from different organizations, however, only up to four padlocks per each post gate are allowed. These organizations include: Aviation Department, FAA, Kansas City Power and Light, Kansas City Health Department, USDA Wildlife Services, and Missouri Public Works (MoPub). Keys will be issued to employees of these organizations on an individual basis only. All padlocks required will be issued to one individual from each organization. To receive a key or padlock, the individual must have a valid airport-issued identification/access badge authorized for the specific area of which the padlock and keys are requested. An AOA Post Access Key/Padlock Request Form, **Attachment 5,** must be presented to the Airport ID Office and include an authorized signature. The Key Custodian will use the KCI Airport AOA Access Key Issue Log, **Attachment 6**, to record keys issued to employees for the padlocks.

The Aviation Department will be notified when there is no longer a need for access to a specific area or post gate by an organization before removing the issued padlock. An Aviation Department representative will accompany the organization's individual when the padlock is removed and ensure the AOA Post Gate is secured. All keys and padlocks will be returned to the Airport ID Office. At a minimum of once a shift, the Airport Police will check all post gates to verify all padlocks and post gates are secured. Any discrepancies found will be reported immediately to Airport Police supervision. The unsecured padlock will be secured by the Airport Police officer, who will ensure it is secured with an Aviation Department padlock. A formal report will be made by the Airport Police Officer.

Escort Procedures – Persons who do not have unescorted access authority and have a need to enter the AOA, must be under "positive" escort by a person who has a valid authorized identification/access badge for the AOA. "Positive" escort means the individual providing the escort must be in the proximity of the individual(s) being escorted to the extent capable of controlling the movement of the individual(s) and ensure the individual(s) under escort is engaged in only activities for which escorted access was granted. Should the individual(s) attempt to engage in unauthorized activity, the person providing the escort should conduct a verbal challenge. Should the person providing the escort become endangered, or the escorted individual(s) is unresponsive to the verbal challenge, ACC should be notified immediately by radio or telephone. ACC will dispatch an Airport Police Officer to the reported location for appropriate action and follow-up. ***No person may be escorted onto the AOA who has been granted unescorted access authority and does not have their badge in their possession.***

Vehicle Identification – All vehicles operating on the AOA must be properly marked and lighted. It will be the driver's responsibility to ensure the vehicle is in compliance, violators will be denied access or removed.

- Markings – vehicles operating on the AOA will be clearly marked with company name, symbols, words, and/or number so as to be easily identified as belonging to a particular tenant, organization, the City, or contractor.
- Lighting – all vehicles operating on the AOA will be lighted with an amber flashing or rotating beacon mounted on the uppermost part of the vehicle when possible and reasonable or equipped with lighting visible from all sides.

Personally-owned vehicles are not authorized on the Air Operations Area.

Perimeter Post Gates – The number of outlying vehicle Post Gates in the perimeter fencing are low throughput and limited to the minimum required for the safe and efficient operation of the airport. The Post Gates are designated by number with the same corresponding number affixed to the gate. All perimeter Post gates are secured with lock and chain and controlled by the Aviation Department under the Airport's Lock and Key Procedure outlined in the KCI Airport Security Program. Other locks may be added in conjunction with the Aviation Department locks only after approval of the Aviation Department.

Vehicle Access Post Gates – Vehicle post gates allowing access to the Secured Area and AOA are controlled under the provisions of TSR Part 1542.203. An airport-issued identification/access badge is required to enter the AOA through the vehicle post gates.

C. Security Identification Area (SIDA)

Description – The SIDA at KCI has the same boundaries as the Secured Area. It also includes the inside of the buildings and the ramp areas of ARFF, United States Postal Service, cargo facilities, FBO, and Field Maintenance located north of the terminal buildings. Individuals are subject to a fingerprint – based Criminal History Records Check or CHRC Certification from their employer, as well as a Security Threat Assessment (STA) performed by the Transportation Security Clearinghouse through the Kansas City Aviation Department. The employer must verify a CHRC has been performed and verify that the individual has received security training.

KCI has one general aviation tenant located north of the terminal buildings among the cargo facilities. Though the general aviation facility is described in the KCI Airport Security Program as a SIDA, it is unrealistic to badge all private aviation customers. The general aviation tenant will be responsible for the security of their leasehold and escort of their respective customers, and challenging of apparent unauthorized persons. All customers must check in at the customer service desk prior to entering the SIDA. Customers arriving by aircraft may be monitored as they proceed from their aircraft to the general aviation facility. Customers of general aviation are restricted to those areas on the general aviation ramp necessary to conduct their business. The general aviation tenant is responsible to ensure their customers are adequately monitored or escorted, and do not deviate to other non-authorized areas. Tenant employees should challenge unescorted/unidentified persons on the SIDA, or contact the Airport Police for response.

Escort Procedures – Persons who do not have unescorted access authority and have a need to enter the SIDA, must be under "positive" escort by a person who has a valid authorized identification/access badge for the SIDA. "Positive" escort means the individual providing the escort must be in the proximity of the individual(s) being escorted to the extent capable of controlling the movement of the individual(s) and ensure the individual(s) under escort is engaged in only activities for which escorted access was granted. Should the individual(s) attempt to engage in unauthorized activity, the person providing the escort should conduct a verbal challenge. Should the person providing the escort become endangered, or the escorted individual(s) is unresponsive to the verbal challenge, ACC should be notified immediately by radio or telephone. ACC will dispatch an Airport Police Officer to the reported location for appropriate action and follow-up. ***No person may be escorted onto the SIDA who has been granted unescorted access authority and does not have their badge in their possession.***

D. Accountability

When a key has been lost, reported stolen, or not returned by terminated or transferred employees, the tenant / contractor, organization manager, or Key Custodian will immediately notify the Airport ID Office or the Airport Communication Center at 243-4000. The tenant manager / contractor and the Aviation Department will take immediate action to monitor those access points compromised, to include the associated general ramp area. If appropriate, a physical description of the individual

will also be provided to the Airport Police. The Airport Police will make additional patrols in the area and challenge any suspicious individuals or activity until all affected locks are changed.

Any lock or padlock that is compromised must be replaced or decommissioned in one (1) hour. A sufficient number of locks, padlocks, cores, and keys will be available so that, if compromised, the entire lock and key system may be replaced within 24 hours. Locks controlling access to the AOA (TSR Part 1542.203) are deemed compromised when 5% of the keys are unaccounted for.

E. Fingerprint Based Criminal History Records Check

General – KCI will follow the procedures in 49 CFR 1542.209 for those persons requiring unescorted access authority to the Security Identification Display Area (SIDA), Secured Area and/or AOA. Maintenance of the criminal history record will be the responsibility of the airport or agency authorized to request, receive and review criminal history. It will be the responsibility of the airport to destroy this information at the appropriate time. These responsibilities will not be further delegated. KCI will ensure no individual is granted unescorted access to the SIDA, Secured Area or AOA unless the individual has undergone a fingerprint based Criminal History Records Check (CHRC), or provided a Certification, from their employer, that does not disclose the individual has been convicted, or found not guilty by reason of insanity of any of the disqualifying crimes in any jurisdiction during the 10 years before the date of the individual's application. Additionally, individuals requiring unescorted access to the SIDA must successfully complete a Security Threat Assessment (STA) performed by the Transportation Security Clearinghouse through the Kansas City Aviation Department.

For List of Disqualifying Crimes, see **Attachment 7**.

Exemptions: KCI will authorize the following individuals unescorted access authority upon receipt of a Certification form, **Attachment 9**:

- Any employee of the Federal, state, or local government (including a law enforcement officer) who, as a condition of employment, has been subjected to an employment investigation that includes a criminal records check.

Notwithstanding the requirements of TSR Part 1542.209, KCI may authorize the following individuals unescorted access authority upon receipt of a Certification form, **Attachment 9**, signed by an authorized individual:

- An individual who has been continuously employed in a position requiring unescorted access authority by another airport operator, airport user, or aircraft operator, or contractor to such an entity, provided the grant for his or her unescorted access authority was based upon a fingerprint based CHRC through TSA or FAA.
- An individual who has been continuously employed by an aircraft operator or aircraft operator contractor, in a position with authority to perform screening functions, provided the grant for his or authority to perform screening functions was based upon a fingerprint based CHRC through TSA or FAA.

KCI has 2 'Visionics' electronic fingerprint machines located in the Airport ID Office at the Airport Police Building. The Airport ID Office personnel have received adequate training to collect fingerprints and transmit the data with these machines.

Procedures – At the time of fingerprinting, KCI will provide the individual to be fingerprinted a Fingerprint Application, **Attachment 7**, acknowledging the individual does not have a disqualifying offense as well as disclosure responsibilities.

Each individual must complete and sign the Fingerprint Application prior to submitting his or her fingerprints.

The Airport ID Office personnel must verify the identity of the individual through 2 forms of identification prior to fingerprinting and ensure the printed name on the application is legible. At least one of the two forms of identification must have been issued by a government authority, and at least one must include a photo.

One set of legible and classifiable fingerprints will be collected by Airport ID Office personnel and processed electronically to the FBI through AAAE as required by the TSA.

Results of a CHRC will be electronically received by an ASC. The criminal record information provided by the FBI will not be disseminated to anyone other than:

- The individual to whom the record pertains, or that individual's authorized representative;
- Officials of other airport operators who are determining whether to grant unescorted access to the individual;
- Aircraft operators who are determining whether to grant unescorted access to the individual; or
- Others designated by the TSA.

When a CHRC on an individual seeking unescorted access authority discloses an arrest for any disqualifying criminal offense, without indicating a disposition, KCI will determine after investigation, the arrest did not result in a disqualifying criminal offense before granting that authority.

KCI will accept certification from aircraft operators for each individual seeking unescorted access authority for the aircraft operator employees and contractors under the provisions of TSR Part 1544.229. Individuals seeking unescorted access authority under these provisions must present a completed Certification form, **Attachment 9**, signed by an individual listed on the Authorized Signature form. **Attachment 2**.

Each individual with unescorted access authority who has a disqualifying criminal offense must report the offense to the airport operator and surrender their KCI Airport-issued identification/access badge to the Airport ID Office within 24 hours of the conviction or finding of not guilty by reason of insanity.

If information becomes available to the airport operator indicating that an individual with unescorted access authority has a disqualifying criminal offense, the ASC will determine the status of the conviction. If a disqualifying offense is confirmed, KCI will immediately revoke any unescorted access authority.

The airport user must report to KCI information, as it becomes available, that indicates an individual with unescorted access authority may have a disqualifying criminal offense.

Unclassifiable Fingerprints – In instances where fingerprints are unclassifiable or unattainable due to physical impairment, KCI will utilize the following procedure to clear an individual and grant unescorted access authority to the Secured Area/SIDA:

- KCI or an aircraft operator will conduct a full 10-year employment verification on the individual. An individual will not be considered "cleared" under this investigation if there is an unexplained gap of 30 days or more pertaining to the individual's whereabouts during this 10-year period.
- The individual must present, with his or her application for unescorted access authority, a certified birth certificate (along with a certified translation if the birth certificate is not in English).

- The individual must present, with his or her application for unescorted access authority, a current government issued identification card with a photo of the individual.
- If the individual is a foreign national, the individual must present, with the application for unescorted access authority, a valid and current work visa or other equivalent document (which must be verified with the Immigration and Naturalization Service).
- KCI or an aircraft operator will request, through the TSA, a manual FBI criminal history records check (CHRC) based on personal information contained in the procedure described above.

Fees – KCI will charge the following fees for each fingerprint taken at the Airport ID Office:

- $31 – fingerprints taken using the Airport's Submitting Office Number (SON).
- $29 – fingerprints taken for TSA screeners.

Audit – Each airport user must provide KCI with either the name or title of the individual acting as custodian of the files, the address, of the location where the files are maintained, and the phone number of that location. The airport user must provide KCI and TSA with access to these files. KCI will conduct an annual audit under the provision set forth by TSA.

F. Identification Systems

General – No person will be allowed within the Secured Area, SIDA, or AOA of KCI Airport without the possession of a valid airport-issued ID badge authorized for access into these areas or under direct escort by a properly-badged person. Any person found in the Secured Area, SIDA or AOA without proper identification as described herein, will be considered unauthorized, immediately removed from the Secured Area, SIDA or AOA, and subject to prosecution.

Display – All persons within the Secured Area, SIDA or AOA of KCI Airport will display on their person, at all times while in the area, a valid identification badge issued or approved by KCI Airport. Individuals in the Secured Area, SIDA or AOA must continuously display the identification badge issued to that individual on the outermost garment, above waist level, or be under escort by a properly badged individual. KCI Airport will provide a map of these boundaries to individuals with unescorted access authority. **Attachment 14.**

Authorized Identification – The following means of identification are authorized on the airport by KCI:

- Airport-issued identification/access badges described herein;
- FAA Form 110A is recognized as authorizing FAA Aviation Safety Inspectors unescorted presence and movement to those portions of a Security Identification Display Area (SIDA) as necessary to the conduct of his/her assigned duties.
- The use of aircraft operator identification media issued to flight and cabin crew members of U.S. certificated aircraft operators is authorized for unescorted movement in the following portions of the Secured Area: The immediate vicinity of the aircraft to which flight crew is assigned; flight crew operations/flight office, or the equivalent; and points in between, as defined in the KCI Airport Security Program.

  Flight crewmembers must be in uniform and wear an aircraft operator issued identification medium, readily visible at waist level or above. Such ID must be worn by the crewmember to whom it was issued.
- Airline Temporary Badges – Temporary badges are issued to KCI Airline Managers for the purpose of providing non-KCI based airline employees temporary access to the Secured Area.

The airline temporary badge must be worn in conjunction with the aircraft operator ID medium and will be issued on a day-to-day basis to the non-KCI based employees needing temporary access to a specified area within the Secured Areas of the airline's leased premises. The Airline Manager will provide site-specific training for non-KCI based employees.

Each Airline Manager is required to complete an Application form, **Attachment 10,** for each temporary badge assigned to them. The Airline Manager is responsible for the control and accountability of the airline temporary badges assigned their respective airline.

Airline temporary badges are valid for one calendar year. If at anytime while in the possession of an airline temporary badge, the authority of that individual is questioned, the holder's access authority can be verified by contacting the associated Airline Manager. All airline temporary badges will be returned to the associated Airline Manager at the conclusion of the workday.

- Law Enforcement Temporary Badges – Temporary badges are issued by KCI to supplemental Law Enforcements Agencies identified in the KCI Airport Security Program in the event emergency security measures are mandated by TSA requiring Law Enforcement support in excess of the number of available Airport Police Law Enforcement Officers. These temporary badges do not authorize unescorted access to the Secured Area, SIDA, or AOA however, must be worn at all times when the individual is acting as an agent of the Airport Police. Temporary badges are issued on a day-to-day basis and returned to the Airport Police at the conclusion of assignment.

* Contractor badges are issued to individuals who are providing contractor or construction work on the airport. Individuals may only be in the areas of their assigned construction activity. Primary contractors will be issued the appropriate color-coded badge required for the area in which they are working. All other personnel associated with each project will be under positive escort at all times while working within the Secured Area, SIDA, or AOA. A deposit of $100 is required for each contractor badge issued and reimbursed when the badge is returned.

Application – Prior to the issuance of any KCI Airport identification/access badge, each tenant/company must have an Authorized Signature Form, **Attachment 2,** on file in the Airport ID Office. The following documents are required to be presented at the Airport ID Office as specified:

- Airport ID Office personnel must verify the identity of the individual through 2 forms of identification prior to fingerprinting and ensure the printed name on the application is legible. At least one of the two forms of identification must have been issued by a government authority, and at least one must include a photo.

- Application form, **Attachment 10** - must be completed, and signed by the applicant and an individual listed on the respective Authorized Signature Form. The employer of the individual for whom the badge is being requested must make applications for badges. Please refer to the instructional document entitled, "Step-by-Step Procedures for the Completion of the KCI Airport ID Badge / Proximity Card Application (Attachment 10)", which is located at the end of this document.

- Fingerprint Application, **Attachment 7** - must be completed and signed by the applicant or present a Certification form, **Attachment 9**, signed by an individual listed on the Authorized Signature Form.

- Certificate for Reassigned or Temporarily Assigned Airline or Tenant Employees form, **Attachment 12** - must be completed and signed by those individuals who have received Secured Area/SIDA training at another airport and desire to waive the training at KCI. This form includes a map and description of the Secured Area/SIDA and contains contact information for law enforcement.

- Tenant and Contractor Letter of Agreement, **Attachment 13** - must be completed and signed by both the tenant company and the contractor company and must be on file in the Airport ID Office before any badge is issued to contract employees. This form ensures the contractor is authorized to provide services for a tenant company. The form describes requirements for deposits, badges not returned, and badge renewals. The project completion date listed on the form will be the badge expiration, not to exceed 24 months.

Accountability – Identification/access badges will be issued on an individual basis. Each badge will be numbered and this number will be assigned to an individual. Any individual losing a badge will report the loss immediately to the Airport ID Office. Replacement of a lost, stolen, or expired badge will only be issued if an individual declares in writing that the medium has been lost or stolen and a $50 charge assessed. The payment will be made prior to a new badge being issued unless the company has an agreement, beforehand, to pay for any lost badges. The company is responsible for the immediate reporting of a lost badge.

When an individual no longer has a need for a badge, the company will be responsible to ensure the Airport ID Office is notified immediately and the badge physically returned to the Airport ID Office. The company will be billed $50 for badges not returned. Aviation Department contractors must return all badges at the completion of their project. The $100 deposit will be withheld for each badge that is expired, lost, or not returned.

For ongoing audit purposes, the Airport ID Office supervision prepares monthly Active Badge Reports, which are mailed out to each active company on the 1st day of the month. Each company is instructed, by an accompanying letter, to return the Active Badge Report no later than the 15th of the month, or their service is discontinued pending receipt of the report. In addition, random monthly "spot checks" will be conducted physically – or by way of facsimile request – to the active companies' management by the ID Office manager that will include all identification/access badge holders. Each active company will be "spot checked" at least one annually.

G. Training

All applicants for an airport-issued identification/access badge at KCI will receive training through a computer-based learning system using verbal, visual, and written material to ensure understanding. Each employee, tenant employee, or other authorized individual issued an airport identification/access badge allowing access to the Secured Area/SIDA and AOA, is required to successfully complete the airport security training curriculum approved by the TSA, in accordance with TSR Part 1542.213.

Section 011501 - KCAD VEHICLE INSPECTION AND SAFETY PROGRAM

Purpose

This program has been developed and is administrated by the Kansas City Aviation Department (KCAD) - Airport Operations Division. The program was developed to establish guidelines and procedures for issuing permanent and temporary Airport Operations Area (AOA) permit decals for all non-escorted motorized driven vehicles and all aircraft fuel carts governed by National Fire Protection Agency (NFPA) 407 operating on the AOA. The area covered by the program includes the following locations:

- All airline terminal aprons
- JP Cooper Road
- Ottawa Ave
- Gravel perimeter road
- AOA movement area
- Vehicles entering through Posts 1, 2, 3, 4, 5, 28

AOA locations exempt from this program include:

- Overhaul Base
- Federal Express apron
- Haith Cargo apron.
- Signature Flight Support apron
- Joint Cargo apron
- Aero Term apron
- North Field Maintenance

The purpose of the program is to provide rules to enhance AOA security, vehicle safety, and ensure minimum vehicle insurance requirements are met.

Motorcycles are prohibited, with the exception of law enforcement.

Types of Permits

This program is applicable to all authorized motorized driven vehicles, including aircraft fueling hydrant carts owned or leased by city, federal government, utility companies, tenants, city and tenant contractors and vendors which operate on the AOA at Kansas City International Airport. Proof of registered ownership, or lease agreement to one of the above entities, must be submitted prior to receiving a decal. Privately owned vehicles are prohibited unless otherwise specified in a contract or agreement with the city.

The following two types of vehicle permits are issued by Airport Operations:

- **Permanent**

Permanent permit decals are issued to vehicles operated by the city, city contractors and vendors, federal government, authorized utility companies, and tenants, operated by valid authorized AOA badged employees to conduct business on the AOA.



- **Temporary**

  Temporary permit decals are issued to vehicles operated by authorized AOA badged contractors hired by the city, federal government, and its tenants who perform work on a temporary basis, such as tenant modifications, airfield construction projects, or FAA facility installation. A temporary permit decal also shall be used for temporary leased vehicles that are being operated in lieu of a permanent vehicle that may be in the shop for repair or similar situation.



Vehicle Requirements

Regardless of whether the vehicle is being issued a permanent or temporary pass decal, all vehicle requirements will be the same.

- **Identification**
  Each vehicle authorized to operate within the program coverage area shall display on each side of the vehicle, either professionally painted, stenciled, or with a magnetic sign, the name of the company/authority with minimum font to be visible from a distance of 50 feet away.

- **Special Lighting**
  - All vehicles will have a amber/yellow rotating beacon or strobe light attached to the highest portion of the vehicle so that it will be visible 360-degrees, and operated at all times while the engine is running.
  - Lights must have peak intensity within the range of 40 to 400 candelas (effective) from 0º (horizontal) up to 10º above the horizontal and for 360º horizontally. The upper limit of 400 candelas (effective) is necessary to avoid damage to night vision.
  - From 10º to 15º above the horizontal plane, the light output must be 1/10th of peak intensity, or between 4 and 40 candelas (effective).
  - Lights must flash at 75 ± 15 flashes per minute.
  - The amber/yellow lens shall not be damaged or cracked to allow white light to pass through. All emergency vehicles are exempt from the color of the lens.

- **Required Vehicle Safety Equipment**
  - All vehicles shall have the following lighting and reflectors:
    - Operative headlights, taillights, side marker lamps – 2 rear red and 2 amber front.
    - Reflex reflectors - 2 red rear, 2 amber front side, 2 red rear side.
    - If the vehicle is designed to trailer equipment, that equipment must have reflex reflectors – 2 red rear, 2 amber front side, 2 red rear side. Three inch stripes of reflective tape may be used rather than reflectors.
    - Specialized equipment and fuel carts that were not originally manufactured with headlights and taillights shall have three inch stripe reflective tape and/or reflectors - 2 red rear, 2 amber front side, 2 red rear side.
  - Muffler systems must be free of holes. The exhaust end of the tailpipe and exhaust lines must be mounted so that they are positioned a minimum of 6 inches from the surface.
  - Emergency brakes must be capable of holding the vehicle when placed in drive with the motor running and only the emergency brake engaged.
  - The vehicle must not leak any fuel, oil, hydraulic, coolant, or transmission fluids.
  - Fueling vehicles and hydrant carts must comply with NFPA 407.

- **Insurance**

  The limits of insurance coverage is governed by Commercial Development. Prior to the issuance of the permit decal, proof of the following insurance is required:

  <u>Signatory Airlines</u>

  Commercial Automobile Liability Insurance: with a limit, unless otherwise specified in a contract or agreement, of five million dollars ($5,000,000) combined single limit, covering owned, hired and non-owned motor vehicles. Coverage provided shall be on an "any auto" basis and written on an "occurrence" basis. This insurance shall be written on a Commercial Business Auto form, or acceptable equivalent, and shall protect against claims arising out of the operation of motor vehicles on the airport, as to acts done in connection with the agreement, by airline. The above requirements apply to owned, non-owned and hired vehicles.

  <u>Non-signatory airlines and all other tenants and contractors</u>

  Commercial Automobile Liability Insurance: with a limit, unless otherwise specified in a contract or agreement, of five million dollars ($5,000,000) combined single limit, covering owned, hired and non-owned motor vehicles. Coverage provided shall be on an "any auto" basis and written on an "occurrence" basis. This insurance shall be written on a Commercial Business Auto form, or acceptable equivalent, and shall protect against claims arising out of the operation of motor vehicles on the airport. The above requirements apply to owned, non-owned and hired vehicles.

<u>Acquiring a Permit</u>

Each company, tenant, government agency, contractor, who has an operational need to operate a vehicle on the AOA, shall complete and have on file with Airport Operations, a list of those

individuals employed by each organization that have the authority to request an AOA vehicle permit.

Each company, tenant, government agency, contractor shall make a request from Airport Operations for a Permanent/Temporary AOA decal. Once the request has been received, and confirmed that the minimum insurance and registration and/or lease agreement requirements are met, Airport Operations shall make arrangements to inspect the vehicle to ensure it meets the minimum requirements. Once the vehicle has passed the inspection, a decal will be affixed to a prominent location on the driver side, such as the windshield, front bumper, or forward side. Once the decal has been affixed to the vehicle, the application form will reflect the permit number that was issued, and the database updated.

The company, tenant, Government agency or contractor shall maintain the vehicle to ensure it operates with the minimum lighting and safety equipment as indicated above.

Failure to Maintain Minimum Lighting and Safety Equipment

If the following discrepancies are found with a vehicle, the operator will be advised to park the vehicle until repairs are made:

- Inoperative headlights while operating the vehicle between sunset and sunrise.
- No muffler or damaged muffler.
- Missing or inoperative beacon while operating the vehicle.
- Fuel leaking, or significant fluid leaking at the discretion of Airport Operations.
- Condition of vehicle is determined to be a fire hazard.

Once the vehicle is parked, a "Do Not Operate Equipment" tag will be attached to the vehicle steering wheel and an electronic notification will be sent to the owner.



If a vehicle is found operating without the minimum lighting and safety equipment, but the condition does not deem it necessary to immediately park the vehicle, an electronic notification will be made to the owner. The notice will state the reason for the violation and grace period

when repairs must be made to correct the infraction. Once the repairs are made, the owner of the vehicle will request Airport Operations to inspect the vehicle. Once inspected and passed, a new decal will be issued and affixed to the vehicle.

If the vehicle is found operating past the grace period with the same infraction, the decal will be removed by Airport Operations and the operator of the vehicle will be warned not to operate the vehicle. In addition, a "Do Not Operate Equipment" tag will be attached to the vehicle steering wheel. An electronic notification will be made to the vehicle owner to whom the permit was issued. The notice will state the reason why the decal was removed, and indicate that the vehicle can not be operated on the AOA until repairs are made and inspected.

Once repairs are made, Airport Operations will be contacted by the owner so the vehicle can be inspected. Once inspected and passed, a new decal will be issued and affixed to the vehicle, the "Do Not Operate Equipment" tag will be removed, and database updated.

Audit Program

Each June 1st, Airport Operations will submit to the owner a list of their permitted vehicles. The owner will review the list and submit any changes.

Anytime a vehicle is taken out of inventory and/or no longer assigned or operating on the AOA, the owner will submit a "Change of Vehicle Status" form to Airport Operations.

Permanent vehicle decals are good for two years from the month it was issued. After two years, the vehicle will be inspected for minimum lighting and safety equipment. Once the vehicle has passed inspection, the existing inspection decal will be replaced with a new decal. The database will then reflect the new decal. It will be the responsibility to Airport Operations to monitor the program to ensure vehicles are inspected after the two years.

Any decal that cannot be accounted for will be reflected on an AOA Vehicle Decal Hot List. The Hot List will be maintained by Airport Operations. A copy of this report will be posted at Post 1 and 28 guard shacks.

SECTION 012200 - UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for unit prices.

B. Related Sections include the following:

1. Division 01 Section "Allowances" for procedures for using unit prices to adjust quantity allowances.
2. Division 01 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
3. Form 00412 Unit Prices
4. Division 01 Section "Quality Requirements" for general testing and inspecting requirements.
5. Technical Specifications for procedures for measurement and payment for unit-price bid items.

1.3 DEFINITIONS

A. Unit price is a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, overhead, and profit.

B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

C. CITY reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at CITY's expense, by an independent surveyor acceptable to Contractor.

D. List of Unit Prices: A list of unit prices is included in Form 00412 Unit Prices. Specification Sections referenced in the list contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 LIST OF UNIT PRICES

A. Reference Section 00412 Unit Prices

END OF SECTION 012200

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

B. Related Sections include the following:

1. 00700 – General Conditions
2. 00800 – Supplementary Conditions
3. Division 01 Section "Allowances" for procedural requirements for handling and processing allowances.
4. Division 01 Section "Unit Prices" for administrative requirements for using unit prices.
5. Division 01 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.
6. Form 00930 Request For Interpretation
7. Form 00931 Supplemental Design Instructions
8. Form 00932 Request for Proposal
9. Form 00940 Change Order Form
10. Form 00945 Work Change Directive

1.3 REQUEST FOR INTERPRETATION (RFI)

A. Use Form 00930 to request design intent or clarification of item/s from Design Professional. Contractor shall not construe Design Professional’s response to RFI as Contractor’s right to additional cost. If Contractor deems that additional cost is involved due to Design Professionals’ response, then Contractor must follow the requirements of Paragraph 1.5B below.

B. If the Contractor’s RFI includes recommendation for alternate means and methods of achieving the desired end product, then that recommendation must indicate the order of magnitude costs, including debit and credits and impact on contract time to the City.

1.4 MINOR CHANGES IN THE WORK

A. Design Professional will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on Form 00931 Supplemental Design Instructions.

1.5 PROPOSAL REQUESTS

A. CITY-Initiated Proposal Requests: Design Professional will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications. See Form 00932 Request for Proposal.

1. Proposal Requests issued by Design Professional are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
2. Within 14 days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate delivery charges, equipment rental, and amounts of trade discounts.
    c. Include costs of labor and supervision directly attributable to the change.
    d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Design Professional.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate delivery charges, equipment rental, and amounts of trade discounts.
4. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
5. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

C. Proposal Request Form: Use 00932 Request for Proposal or similar document agreeable to the CITY, Contractor and CITY’s Representative.

1.6 CHANGE ORDER PROCEDURES

A. On CITY's approval of a Proposal Request, Design Professional will issue a Change Order for signatures of CITY and Contractor on Form 00940 Change Order.

1.7 WORK CHANGE DIRECTIVE

A. Work Change Directive: Design Professional may issue a Work Change Directive on Form 00945. Work Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Work Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time. See 00945 Work Change Directive.

2. If additional costs are required for the work included in the Work Change Directive, within 14 days after receipt of the Work Change Directive, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

3. If the work entailed in the Work Change Directive affects multiple discipline subcontractors, then cost (debits and credits to the CITY) for that Work Change Directive must be all inclusive (i.e. must include cost, contract sum and contract time) from any and all affected subcontractors. The Design Professional shall reject any and all Work Change Directive cost if it fails to include cost from affected subcontractors.

B. Documentation: If the work required by the Work Change Directive is to be completed on the basis of Cost of Work, maintain detailed records on a time and material basis in accordance with Article 11, Change of Contract Price.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

APPLICATION FOR PAYMENT

Project Number 62230566

Project Title Taxiway E and Taxiway J Rehabilitation

Final Payment[5] ☐

CONTRACTOR

Address

Application Number[2]:
Date:
Ordinance/Resolution Number:
Effective:
PO Number
Vendor Number

Application for Work Accomplished from _____ to _____

Original Contract Price		[1]			$ -
Net by Change Orders___through___				[2]	$ -
Current Contract Price (1+2)				[3]	$ -
Completed Work		[4]	$ -		
Disputed Amounts[3]	[-]	[4a]	$ -		
Stored Material[4]		[5]	$ -		
Disputed Amounts[3]	[-]	[5a]	$ -		
Total Completed and Stored to Date (4+5)				[6]	$ -
Previous Payments		[7]	$ -		
Previous Retainage		[8]	$ -		
Total Previous Applications (7+8)				[9]	$ -
Amount This Application (6-9)				[10]	$ -
Less Retainage This Application (10%)				[-] [11]	$ -
Release of Retainage				[12]	$ -
Total Due This Application (10-11+12)				[13]	$ -
Liquidated Damages					
Completion of Work		[14]	$ -	[-]	$ -
Prevailing Wage[7]		[15]	$ -	[-]	$ -
MBE/WBE Program[7]		[16]	$ -	[-]	$ -
Workforce Program[7]		[17]	$ -	[-]	$ -
Total Amount Due Contractor (13 - 14 through 17)				[18]	$ -

Accompanying Documentation: [1, 2, 3, 4, 5, & 6] and any other information as necessary.

NOTE: Initial all figures on this Application and on the Schedule of Values that are changed to correct errors or conform to the amount recommended. Attach explanation of changes that have been made.

CONTRACTOR's Certification:

The undersigned CONTRACTOR certifies that (a) all previous progress payments received from OWNER on account of Work done under this Contract have been applied on account to discharge CONTRACTOR's legitimate obligations incurred in connection with Work covered by all prior Applications for Payment; (b) at time of payment, title of all Work, materials and equipment incorporated into said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to OWNER indemnifying OWNER against any such Lien, security interest or encumbrance); and (c) all Work covered by this Application for Payment is in accordance with the Contract Documents and not defective; and (d) all manufactured goods or commodities used or supplied for this Project are in compliance with Kansas City's Buy America ordinance.

_____ By _____ _____

Contractor | Authorized Representative (Print) | Signature

Date_____

State of)
)SS
County of)

Subscribed and Sworn to before me this _____ day of _____, _____ .

My commission expires:

_____ Notary Public: _____

DESIGN PROFESSIONAL's Recommendation of Payment: Project #_____

In accordance with the Contract Documents, based on on-Site observations and the data comprising this application, the DESIGN PROFESSIONAL recommends to the OWNER that to the best of the DESIGN PROFESSIONAL's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the CONTRACTOR is entitled to payment of the Amount above listed in this application.

Amount Recommended $

Name of firm (Print)	DESIGN PROFESSIONAL (Print)	(Signature)

Date: _____

Construction/Program Manager's Recommendation of Payment: (if applicable)

In accordance with the Contract Documents, based on on-Site observations and the data comprising this application, the Construction/Program Manager recommends to the OWNER that to the best of the Construction/Program Manager's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the CONTRACTOR is entitled to payment of the Amount above listed in this application.

Construction/Program Manager firm (Print)	Authorized Representative (Print)	(Signature)

Date: _____

City's Representative's Agreement with Recommendation of Payment

City's Representative(print)	(Signature)	(Date)

City's Approval

The amount previously recommended is approved for payment.

Director or Designee (Print)	(Signature)	(Date)

[1]See General Conditions Article 14.02 A and B

[2]Proof of tax compliance if 1st payment and if Contract amount exceeds $160,000.00

[3]Schedule of Values–Denote any amounts currently disputed in this application. Attach additional dispute documentation if required.

[4]If requesting payment for stored materials, see General Conditions Article 14.02 A.1

[5]If final payment, current proof of tax compliance if Contract is longer than 1 year and amount exceeds $160,000.00.

[6] Per SC 14.02 A, a copy of the most recent Audit Report CONTRACTOR has submitted to CREO KC through the B2G on-line reporting system.

[7]Applicable only if final payment

REMINDER: CONTRACTOR is responsible for meeting or exceeding the the DBE participation amounts in its Contractor Utilization Plan (CUP) as amended by any previously approved Request for Modification/Substitution. Any Change Orders or amendements modifying the amount CONTRACTOR is to be compensated will have correspondingly impacted the amount of compensation due DBEs for purposes of meeting or exceeding the Bidder/Proposer participation. CONTRACTOR is again reminded to consider the effect of any Change Order or amendment, and to submit a Request for Modification/Substitution if appropriate.

Distribution: Owner, Project Manager, Contractor, Design Professional, Construction Manager

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

SCHEDULE OF VALUES

Project Number 62230566

Project Title Taxiway E and Taxiway J Rehabilitation

CREO KC APPROVED CUP		
MBE	WBE	DBE
		$0.00
%	%	22.36%

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
SPEC SECTION	UNIT PRICE CONTRACTS			DESCRIPTION OF WORK UNIT ITEM DESCRIPTION	$ UNIT PRICE	NO. OF UNITS	$ TOTAL OR LUMP SUM	UNITS COMPLETE	$ COMPLETED WORK	$ STORED MATERIAL	$ TOTAL COMPLETED AND STORED TO DATE		TOTALS TO DATE			% AT BOTTOM	$ TOTAL PREVIOUS APPLICATIONS	$ AMOUNT THIS APPLICATION L-R
	UNIT ITEM NO.	UNIT	ESTIMATED QUANTITY								$ J+K	% J/H	$ MBE	$ WBE	$ DBE			
																P/L		
																O/L		
																N/L		

LABOR STANDARDS INTERVIEW

CONTRACT NUMBER	EMPLOYEE INFORMATION		
	LAST NAME	FIRST NAME	MI
NAME OF PRIME CONTRACTOR			
	STREET ADDRESS		
NAME OF EMPLOYER			
	CITY	STATE	ZIP CODE
SUPERVISOR'S NAME			
LAST NAME / FIRST NAME / MI	WORK CLASSIFICATION	WAGE RATE	

ACTION	CHECK BELOW YES	NO
Do you work over 8 hours per day?		
Do you work over 40 hours per week?		
Are you paid at least time and a half for overtime hours?		
Are you receiving any cash payments for fringe benefits required by the posted wage determination decision?		

WHAT DEDUCTIONS OTHER THAN TAXES AND SOCIAL SECURITY ARE MADE FROM YOUR PAY?

	TOOLS YOU USE	
HOW MANY HOURS DID YOU WORK ON YOUR LAST WORK DAY BEFORE THIS INTERVIEW?		
DATE OF LAST WORK DAY BEFORE INTERVIEW *(YYMMDD)*		
DATE YOU BEGAN WORK ON THIS PROJECT *(YYMMDD)*		

THE ABOVE IS CORRECT TO THE BEST OF MY KNOWLEDGE

EMPLOYEE'S SIGNATURE	DATE *(YYMMDD)*

INTERVIEWER	SIGNATURE	TYPED OR PRINTED NAME	DATE *(YYMMDD)*

INTERVIEWER'S COMMENTS

WORK EMPLOYEE WAS DOING WHEN INTERVIEWED	ACTION *(If explanation is needed, use comments section)*	YES	NO
	IS EMPLOYEE PROPERLY CLASSIFIED AND PAID?		
	ARE WAGE RATES AND POSTERS DISPLAYED?		

FOR USE BY PAYROLL CHECKER

IS ABOVE INFORMATION IN AGREEMENT WITH PAYROLL DATA?

☐ YES ☐ NO

COMMENTS

CHECKER			
LAST NAME	FIRST NAME	MI	JOB TITLE
SIGNATURE			DATE *(YYMMDD)*

SUBCONTRACTORS AND MAJOR MATERIAL SUPPLIERS LIST

Project Number 62230566 Project Title Taxiway E and Taxiway J Rehabilitation

Contractor Ideker, Inc. Date 04-05-2023

Firm, Address, Contact	Phone, FAX and E-mail Address	Scope of Work (i.e. Supplier, Consulting Firm, Electrical)	Contract Amount
Realm Construction PO Box 1236 Blue Springs, MO 64013	816-806-0069 Robert@realmconstructioninc.com	Concrete Paving	$376,887.75
Pine Valley Contracting 13586 Cameron Road Excelsior Springs, MO 64024	816-324-3772 tara@pinevalleyseeding.com	Erosion Control, Seed & Mulch	$162,241.00
Capital Electric 2801 Fairfax Trafficway Kansas City KS, 66115	816-389-4000 Wade.Adams@capitalelectric.com	Electrical	$1,005,282.10
Miller's Pro Cut 5900 East 154th Terrace Grandview, MO 64030	816-322-7917 john@millersprocut.com	Concrete Joint Sealing	$420,508.00
Hi-Lite Airfield Services PO Box 597 Watertown, NY 13601	315-583-6111 Tim.hurtibus@hi-lite.com	Pavement Markings	$268,875.00

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

DAILY LABOR FORCE REPORT

Project Number 62230566 Day _____ Date _____
Project Title Taxiway E and Taxiway J Rehabilitation
Contractor _____
Subcontractor _____

Weather: (Indicate if weather prevented work and why) _____
_____
_____

Shift: (circle) 5–8 hr Days 4–10 hr Days Other _____

* This report *MUST be completed and turned in* for EACH DAY until FINAL COMPLETION.

Worker's Full Legal Name	**Occupational Title or Classification Group & Skill**	**Hours Worked & Time (i.e. 10AM – 4PM)**	**Race & Gender**

I CERTIFY THAT ALL OF THE INFORMATION PROVIDED ABOVE IS TRUE AND COMPLETE.
Contractor/Subcontractor Representative:

Complete Name: (print) _____ Title: (print) _____

Signature: _____ Page ____ of ____

Distribution: ❑ City Department ❑ Contractor ❑ Subcontractor ❑ Other

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

CERTIFICATE OF SUBSTANTIAL COMPLETION

Project Number: 62230566
Project Title: Taxiway E and Taxiway J Rehabilitation

CONTRACT FOR: _____

CONTRACTOR: _____

DATE OF ISSUANCE: _____

PROJECT OR DESIGNATED PORTION SHALL INCLUDE:

The Work performed under this Contract has been reviewed and found, to the Design Professional's and/or Construction Manager's best knowledge, information and belief, to be substantially complete. Substantial Completion is the state in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use. The date of Substantial Completion of Project or portion thereof designated above is hereby established as _____ which is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below:

A list of items to be completed or corrected is attached hereto. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

CONSTRUCTION MANAGER	BY	DATE
DESIGN PROFESSIONAL	BY	DATE

The Contractor will complete or correct the Work on the list of items attached hereto within _____ days from the above date of Substantial Completion.

CONSTRUCTION MANAGER	BY	DATE
DESIGN PROFESSIONAL	BY	DATE

The Owner accepts the Work or designated portion thereof as substantially complete and will assume full possession thereof at _____ (time) on _____(date).

OWNER'S REPRESENTATIVE	BY	DATE

Distribution:
- ❑ Owner
- ❑ Contractor
- ❑ Construction Manager
- ❑ Design Professional
- ❑ Consultant _____
- ❑ Other _____

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

PUNCH LIST

Project Number: 62230566

Project Title: Taxiway E and Taxiway J Rehabilitation

CONTRACTOR _____

From _____ Site Visit Date _____

The following items require the attention of the CONTRACTOR for completion or correction. This list may not be all-inclusive, and the failure to include any items on this list does not alter the responsibility of the CONTRACTOR to complete all Work in accordance with the Contract Documents.

Item No.	Location (Area)	Description	Correction/ Completion Date	Verification Check

❑ Attachments

Signed by: Date:

DESIGN PROFESSIONAL (Firm/In House)

Distribution:
- ❑ OWNER
- ❑ CONTRACTOR
- ❑ DESIGN PROFESSIONAL
- ❑ Consultant _____
- ❑ Other _____

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

CONTRACTOR AFFIDAVIT FOR FINAL PAYMENT

Project Number 62230566

Project Title Taxiway E and Taxiway J Rehabilitation

STATE OF _____)
)SS
COUNTY OF _____)

The Undersigned, _____ of lawful
(Name)
age, being first duly sworn, states under oath as follows:

1. I am the _____ of _____who is the general
(Title) (CONTRACTOR)
CONTRACTOR for the OWNER on Project No. 62230566 – Taxiway E and Taxiway J Rehabilitation.

2. All payrolls, material bills, use of equipment and other indebtedness connected with the Work for this Project have been paid and all Claims of whatever nature have been satisfied, as required by the Contract.

3 (✓) ____Prevailing wage does not apply; or

(✓) ____All provisions and requirements set forth in Chapter 290, Section 290.210 through and including 290.340, Missouri Revised Statutes, pertaining to the payment of wages to workmen employed on public works projects have been fully satisfied and there has been no exception to the full and complete compliance with these provisions and requirements and the Annual Wage Order contained in the Contract in carrying out the Contract and Work. CONTRACTOR has fully complied with the requirements of the prevailing wage law as required in the Contract and has attached affidavits from all Subcontractors on this Project, regardless of tier, affirming compliance with the prevailing wage law as stipulated in the Contract.

4. I hereby certify that (a) at project completion and pursuant to contractor's final request for payment, contractor achieved (_____%) Disadvantaged Business Enterprise (DBE) participation on this contract, and (b) listed herein are the names of all certified DBE subcontractors, regardless of tier, with whom I, or my subcontractors contracted.

    1. Name of DBE Firm _____
    Address _____
    _____
    Telephone Number (_____) _____
    IRS Number _____
    Area/Scope*of Work _____
    Subcontract Final Amount _____

    2. Name of DBE Firm _____
    Address _____
    _____
    Telephone Number (_____) _____
    IRS Number _____
    Area/Scope*of Work _____
    Subcontract Final Amount _____

List additional subcontractors, if any, on a similar form.

Supplier** Final Amount: _____

*Reference to specification sections or bid item number.

(✓) ____ Met or exceeded the Contract utilization goals; or
(✓) ____ Failed to meet the Contract utilization goals (attach waiver, substitution or modification); or
(✓) ____ No goals applied to this Project.

5. CONTRACTOR certifies that each Subcontractor has received full payment for its respective work in connection with the Contract.

6. If applicable, I hereby certify that (a) at project completion and pursuant to contractor's final request for payment, contractor achieved, company-wide, at least ten percent (10%) minority workforce participation and two percent (2%) women workforce participation and (2) a true and accurate copy of my final project workforce monthly report (CREO KC Form 00485.02 and final company-wide workforce monthly report (CREO KC Form 00485.03) are attached. **NOTE: This paragraph is only applicable if you completed a construction contract that was estimated by the City, prior to solicitation, as requiring more than 800 construction labor hours and costing in excess of $300,000.00. If applicable you MUST attach copies of your final monthly workforce reports.**

7. This affidavit is made in behalf of the CONTRACTOR for the purpose of securing from Kansas City, Missouri, the certification of completion of the Project and receiving payment therefore.

8. If the Contract amount exceeded $160,000.00, CONTRACTOR has submitted proof of compliance with the City tax ordinances administered by the City's Commissioner of Revenue and has on file proof of tax compliance from all Subcontractors. If the Contract term exceeded one (1) year, CONTRACTOR has provided proof of compliance with the City tax ordinances administered by the City's Commissioner of Revenue prior to receiving final payment and has on file proof of tax compliance from all Subcontractors prior to the Subcontractor receiving final payment from CONTRACTOR.

CONTRACTOR_____

By _____
(Authorized Signature)

Title _____

On this _____ day of _____, _____, before me

appeared _____, to me personally known to be the

_____of the_____,

and who executed the foregoing instrument and acknowledged that (s)he executed the same on behalf of

_____ as its free act and deed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal on the day and year first above written.

My commission expires:

_____ _____
Notary Public

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

SUBCONTRACTOR AFFIDAVIT FOR FINAL PAYMENT

Project Number 62230566

Project Title Taxiway E and Taxiway J Rehabilitation

STATE OF MISSOURI) ss:

COUNTY OF _____)

After being duly sworn the person whose name and signature appears below hereby states under penalty of perjury that:

1. I am the duly authorized officer of the business indicated below (hereinafter Subcontractor) and I make this affidavit on behalf of Subcontractor in accordance with the requirements set forth in Section 290.290, RSMo. Subcontractor has completed all of the Work required under the terms and conditions of a subcontract as follows:

Subcontract with: _____, Contractor

Work Performed: _____

Total Dollar Amount of Subcontract and all Change Orders: $_____

City Certified ☐MBE ☐ WBE ☐ DBE ☐ NA
List certifications: _____

2. Subcontractor fully complied with the provisions and requirements of the Missouri Prevailing Wage Law set forth in Sections 290.210, RSMo through 290.340, RSMo.

Business Entity Type:
(___) Missouri Corporation
(___) Foreign Corporation
(___) Fictitious Name Corporation
(___) Sole Proprietor
(___) Limited Liability Company
(___) Partnership
(___) Joint Venture
(___) Other (Specify)

Subcontractor's Legal Name and Address

_____

_____
Phone No. _____
Fax: _____
E:mail:_____
Federal ID No._____

I hereby certify that I have the authority to execute this affidavit on behalf of Subcontractor.

By: _____ _____
(Signature) (Print Name)

_____ _____
(Title) (Date)

NOTARY

Subscribed and sworn to before me this _____ day of _____, 20_____.

My Commission Expires:_____ By_____

_____ _____
Print Name Title

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Related Sections include the following:

1. Section 00700 “General Conditions”
2. Section 00800 “Supplementary Conditions”
3. Division 01 Section "Allowances" for procedural requirements governing handling and processing of allowances.
4. Division 01 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
5. Division 01 Section "Unit Prices" for administrative requirements governing use of unit prices.
6. Division 01 Section "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.
7. Form 012900.01 Application for Payment
8. Form 012900.02 Schedule of Values

1.3 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:

a. Application for Payment forms with Continuation Sheets.
b. Submittals Schedule.
c. Contractor’s Construction Schedule

2. Submit five (5) typed copies of the Schedule of Values, Form 012900.02, to Design Professional at earliest possible date but no later than thirty (30) days after the effective date of the Agreement.

3. Subschedules: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values correlated with each phase of payment.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

1. Include a separate line item for each of the following:

a. Bonds
b. Insurance
c. Mobilization

2. Dollar amounts shall include material, labor, overhead, and profit applicable to each individual item indicated.

3. Differentiate between items stored on-site and items stored off-site. If specified, include evidence of insurance or bonded warehousing.
4. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.

5. Schedule Updating: Update and resubmit the Schedule of Values before the next Application for Payment when Change Orders result in a change in the Contract Sum.

1.4 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Design Professional and paid for by CITY.

1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Forms: Use Form 012900.01 Application for Payment supported by Form 012900.02 Schedule of Values.

C. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Design Professional will return incomplete applications without action.

1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
2. Indicate each authorized Change Order as separate items on continuation sheet.

D. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Design Professional by a method ensuring receipt.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

2. Submit an updated Construction Progress Schedule with each Application for Payment.
3. Indicate each authorized Change Order as separate items on continuation sheet.
    a. List by appropriate Change Order Number.
    b. Indicate dollar value breakdown of each Change Order by each applicable Project Manual Section.
    c. Indicate dollar value breakdown by each applicable Project Manual Section.
4. When CITY, Program Manager, or Design Professional requires substantiating information to support contractor's application for payment, submit data justifying dollar amounts which are in question.
    a. Provide 1 copy of data with cover letter for each copy of Application for Payment.
    b. Indicate application number and date.
    c. List each item in question by continuation sheet identification.

E. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of Values.
3. Contractor's Construction Schedule (preliminary if not final).
4. Products list.
5. Schedule of unit prices.
6. Submittals Schedule (preliminary if not final).
7. List of Contractor's staff assignments.
8. List of Contractor's principal consultants.
9. Copies of building permits.
10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
11. Initial progress report.
12. Report of preconstruction conference.

F. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificates of Partial Substantial Completion issued previously for CITY occupancy of designated portions of the Work.

G. Final Payment Application: Submit final Application for Payment in accordance with 00700 General and 00800 Supplementary Conditions.

1. Include 012900.14 Contractor Affidavit for Final Payment.

2. Include 012900.15 Subcontractor Affidavit for Final Payment for each subcontractor regardless of tier.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including 00700 General and 00800 Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
   1. Coordination Drawings.
   2. Administrative and supervisory personnel.
   3. Project meetings.
   4. Requests for Interpretation (RFIs)

B. Each contractor shall participate in coordination requirements. Certain areas of responsibility will be assigned to a specific contractor.

C. Related Sections: The following Sections contain requirements that relate to this Section:
   1. Division 01 Section "Construction Progress Documentation" for preparing and submitting the Contractor's Construction Schedule.
   2. Division 01 Section "Execution Requirements" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
   3. Division 01 Section "Closeout Procedures" for coordinating Contract closeout.

1.3 DEFINITIONS

A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

1.4 COORDINATION

A. Coordination: Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.
4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.

B. If necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for CITY and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.
2. Preparation of Form 012900.02 Schedule of Values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Startup and adjustment of systems.
8. Project closeout activities.

D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as CITY's property.

1.5 SUBMITTALS

A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.

1. Content: Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:

a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.

b. Indicate required installation sequences.
c. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Design Professional for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

2. Sheet Size: At least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).

3. Number of Copies: Submit two opaque copies of each submittal. Design Professional will return one copy.

a. Submit five copies where Coordination Drawings are required for operation and maintenance manuals. Design Professional will retain two copies; remainder will be returned. Mark up and retain one returned copy as a Project Record Drawing.

4. Refer to individual Sections for Coordination Drawing requirements for Work in those Sections.

B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.

1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.6 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

A. General: In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.

1.7 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify CITY and Design Professional of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including CITY and Design Professional, within 3 days of the meeting.

B. Preconstruction Conference: CITY will schedule and conduct a preconstruction conference before starting construction to review responsibilities and personnel assignments.

1. Attendees: Authorized representatives of CITY, Design Professional and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: discuss items of significance that could affect progress, including the following:

    a. Tentative construction schedule.
    b. Phasing.
    c. Critical work sequencing and long-lead items.
    d. Designation of key personnel and their duties.
    e. Procedures for processing field decisions and Change Orders.
    f. Procedures for RFIs.
    g. Procedures for testing and inspecting.
    h. Procedures for processing Applications for Payment.
    i. Distribution of the Contract Documents.
    j. Submittal procedures.
    k. Preparation of Record Documents.
    l. Work restrictions.
    m. Responsibility for temporary facilities and controls.
    n. Construction waste management and recycling.
    o. Parking availability.
    p. Office, work, and storage areas.
    q. Equipment deliveries and priorities.
    r. First aid.
    s. Security.
    t. Progress cleaning.
    u. Working hours.

3. Minutes: Design Professional will record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Design Professional of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

    a. Contract Documents.
    b. Options.
    c. Related RFIs.
    d. Related Change Orders.
    e. Purchases.
    f. Deliveries.
    g. Submittals.

h. Possible conflicts.
i. Compatibility problems.
j. Time schedules.
k. Weather limitations.
l. Manufacturer's written recommendations.
m. Warranty requirements.
n. Compatibility of materials.
o. Acceptability of substrates.
p. Temporary facilities and controls.
q. Space and access limitations.
r. Regulations of authorities having jurisdiction.
s. Testing and inspecting requirements.
t. Installation procedures.
u. Coordination with other work.
v. Required performance results.
w. Protection of adjacent work.
x. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Progress Meetings: Conduct progress meetings at weekly intervals. Coordinate dates of meetings with preparation of payment requests.

1. Attendees: In addition to representatives of CITY and Design Professional, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

1) Review schedule for next period.

b. Review present and future needs of each entity present, including the following:

1) Interface requirements.
2) Sequence of operations.

3) Status of submittals.
4) Deliveries.
5) Off-site fabrication.
6) Access.
7) Site utilization.
8) Temporary facilities and controls.
9) Work hours.
10) Hazards and risks.
11) Progress cleaning.
12) Quality and work standards.
13) Status of correction of deficient items.
14) Field observations.
15) RFIs.
16) Status of proposal requests.
17) Pending changes.
18) Status of Change Orders.
19) Pending claims and disputes.
20) Documentation of information for payment requests.

3. Minutes: Design Professional will record and distribute to Contractor the meeting minutes.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.

a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

E. Coordination Meetings: Conduct Project coordination meetings at weekly intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.

1. Attendees: In addition to representatives of CITY and Design Professional, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work
2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to Combined Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
b. Schedule Updating: Revise Combined Contractor's Construction Schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.

c. Review present and future needs of each contractor present, including the following:

1) Interface requirements.
2) Sequence of operations.
3) Status of submittals.
4) Deliveries.
5) Off-site fabrication.
6) Access.
7) Site utilization.
8) Temporary facilities and controls.
9) Work hours.
10) Hazards and risks.
11) Progress cleaning.
12) Quality and work standards.
13) Change Orders.

3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.8 REQUESTS FOR INTERPRETATION (RFIs)

A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.

1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:

1. Project name.
2. Date.
3. Name of Contractor.
4. Name of Design Professional.
5. RFI number, numbered sequentially.
6. Specification Section number and title and related paragraphs, as appropriate.
7. Drawing number and detail references, as appropriate.
8. Field dimensions and conditions, as appropriate.
9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
10. Contractor's signature.
11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.

a. Supplementary drawings prepared by Contractor shall include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments.

C. Hard-Copy RFIs: Use 00930 Request for Interpretation Form.

1. Identify each page of attachments with the RFI number and sequential page number.

D. Software-Generated RFIs: Software-generated form with substantially the same content as indicated above.

1. Attachments shall be electronic files in Adobe Acrobat PDF format.

E. Design Professional's Action: Design Professional will review each RFI, determine action required, and return it. Allow seven working days for Design Professional's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.

1. The following RFIs will be returned without action:

a. Requests for approval of submittals.
b. Requests for approval of substitutions.
c. Requests for coordination information already indicated in the Contract Documents.
d. Requests for adjustments in the Contract Time or the Contract Sum.
e. Requests for interpretation of Design Professional's actions on submittals.
f. Incomplete RFIs or RFIs with numerous errors.

2. Design Professional's action may include a request for additional information, in which case Design Professional’s time for response will start again.
3. Design Professional’s action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."

a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Design Professional in writing within 10 days of receipt of the RFI response.

F. On receipt of Design Professional’s action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Design Professional within seven days if Contractor disagrees with response.

G. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following: Software log with not less than the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Design Professional.
4. RFI number including RFIs that were dropped and not submitted.
5. RFI description.

6. Date the RFI was submitted.
7. Date Design Professional's response was received.
8. Identification of related Minor Change in the Work, Work Change Directive, and Proposal Request, as appropriate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

DAILY FIELD OBSERVATION REPORT

Project Number 62230566

Project Title Taxiway E and Taxiway J Rehabilitation

Contractor _____

Report Number _____ Date _____ Time _____

Weather			Site Conditions		Day	
❑ Clear	❑ Snow	❑ Warm	❑ Clear	❑ Dusty	❑ Monday	❑ Thursday
❑ Overcast	❑ Foggy	❑ Hot	❑ Muddy	❑ _____	❑ Tuesday	❑ Friday
❑ Rain	❑ Cold	❑ Temperature Range _____			❑ Wednesday	❑ _____

Persons Contacted:

Work Observed:

Items Discussed:

Materials Delivered:

Requested Revisions or Interpretations:

Nonconforming Work Reported This Date To Contractor:

Acceptance Tests Performed

Remarks:

❑ Attachments

Signed by: Date:

Distribution: ❑ Owner ❑ Contractor ❑ Construction Manager ❑ Design Professional
❑ Consultant _____ ❑ Other _____

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

PERIODIC FIELD OBSERVATION REPORT

Project Number 62230566

Project Title Taxiway E and Taxiway J Rehabilitation

Contractor _____

Report Number _____ Date _____ Time _____

Weather			Site Conditions		Day	
❑ Clear	❑ Snow	❑ Warm	❑ Clear	❑ Dusty	❑ Monday	❑ Thursday
❑ Overcast	❑ Foggy	❑ Hot	❑ Muddy	❑ _____	❑ Tuesday	❑ Friday
❑ Rain	❑ Cold	❑ Temperature Range _____			❑ Wednesday	❑ _____

Persons Contacted:

Work Observed:

Items Discussed:

Remarks:

❑ Attachments

Signed by: Date:

Distribution:
- ❑ Owner
- ❑ Contractor
- ❑ Construction Manager
- ❑ Design Professional
- ❑ Consultant _____
- ❑ Other _____

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

B. Form 013200.01 Daily Field Observation Report

C. Form 013200.02 Periodic Field Observation Report

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Preliminary Construction Schedule.
2. Contractor's Construction Schedule.
3. Submittals Schedule.
4. Daily construction reports. (Form 013200.01)
5. Periodic construction reports (Form 013200.02)
6. Material location reports.
7. Field condition reports.
8. Special reports.

B. Related Sections include the following:
1. Division 01 Section "Payment Procedures" for submitting the Schedule of Values.
2. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
3. Division 01 Section "Submittal Procedures" for submitting schedules and reports.
4. Division 01 Section "Quality Requirements" for submitting a schedule of tests and inspections.

1.3 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. Cost Loading: The allocation of the Schedule of Values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum, unless otherwise approved by Design Professional.

C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

E. Event: The starting or ending point of an activity.

F. Float: The measure of leeway in starting and completing an activity.

1. Float time belongs to CITY.
2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

G. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

H. Major Area: A story of construction, a separate building, or a similar significant construction element.

I. Milestone: A key or critical point in time for reference or measurement.

J. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.

K. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.4 SUBMITTALS

A. Qualification Data: For scheduling consultant.

B. Submittals Schedule: Submit three copies of schedule. Arrange the following information in a tabular format:

1. Scheduled date for first submittal.
2. Specification Section number and title.
3. Submittal category (action or informational).
4. Name of subcontractor.
5. Description of the Work covered.
6. Scheduled date for Design Professional’s final release or approval.

C. Preliminary Construction Schedule: Submit two opaque copies.

1. Approval of cost-loaded preliminary construction schedule will not constitute approval of Schedule of Values for cost-loaded activities.

D. Preliminary Network Diagram: Submit two opaque copies, large enough to show entire network for entire construction period. Show logic ties for activities.

E. Contractor's Construction Schedule: Submit two opaque copies of initial schedule, large enough to show entire schedule for entire construction period.

1. Submit an electronic copy of schedule, using software indicated, on CD-R, and labeled to comply with requirements for submittals. Include type of schedule (Initial or Updated) and date on label.

F. CPM Reports: Concurrent with CPM schedule, submit three copies of each of the following computer-generated reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.

1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
3. Total Float Report: List of all activities sorted in ascending order of total float.
4. Earnings Report: Compilation of Contractor's total earnings from the Notice to Proceed until most recent Application for Payment.

G. Daily Construction Reports: Submit two copies at weekly intervals.

H. Material Location Reports: Submit two copies at weekly intervals.

I. Field Condition Reports: Submit two copies at time of discovery of differing conditions.

J. Special Reports: Submit two copies at time of unusual event.

1.5 QUALITY ASSURANCE

A. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting, with capability of producing CPM reports and diagrams within 24 hours of Design Professional's request.

B. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to the Preliminary Construction Schedule and Contractor's Construction Schedule, including, but not limited to, the following:

1. Review software limitations and content and format for reports.
2. Verify availability of qualified personnel needed to develop and update schedule.
3. Discuss constraints, including phasing work stages, and interim milestones.
4. Review delivery dates for CITY-furnished products.
5. Review schedule for work of CITY's separate contracts.

6. Review time required for review of submittals and resubmittals.
7. Review requirements for tests and inspections by independent testing and inspecting agencies.
8. Review time required for completion and startup procedures.
9. Review and finalize list of construction activities to be included in schedule.
10. Review submittal requirements and procedures.
11. Review procedures for updating schedule.

1.6 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from parties involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.

1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
2. Initial Submittal: Submit concurrently with preliminary bar-chart schedule. Include submittals required during the first 60 days of construction. List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.

    a. At Contractor's option, show submittals on the Preliminary Construction Schedule, instead of tabulating them separately.

3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."

B. Time Frame: Extend schedule from date established for the Notice to Proceed Final Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 50 days, unless specifically allowed by Design Professional.
2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.

3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
4. Startup and Testing Time: Include not less than 5 days for startup and testing.
5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Design Professional's administrative procedures necessary for certification of Substantial Completion.

D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.
2. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Division 01 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
3. Work Restrictions: Show the effect of the following items on the schedule:

    a. Coordination with existing construction.
    b. Limitations of continued occupancies.
    c. Uninterruptible services.
    d. Partial occupancy before Substantial Completion.
    e. Use of premises restrictions.
    f. Provisions for future construction.
    g. Seasonal variations.
    h. Environmental control.

4. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:

    a. Subcontract awards.
    b. Submittals.
    c. Purchases.
    d. Mockups.
    e. Fabrication.
    f. Sample testing.

g. Deliveries.
h. Installation.
i. Tests and inspections.
j. Adjusting.
k. Curing.
l. Startup and placement into final use and operation.

5. Area Separations: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
   a. Substantial Completion.

E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion:

1. Notice to Proceed: To Be Determined.

2. Phase 1 shall include Work Area A and be completed in 66 Calendar Days.

3. Phase 2 shall include Work Area A and B and be completed in 44 Calendar Days.

4. Phase 3 shall include Work Area B and C and be completed in 45 Calendar Days.

5. Substantial Completion shall be Phase 3 completion at 155 Calendar Days.

6. Final Completion shall be Spring 2024.

F. Cost Correlation: At the head of schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of the Work performed as of dates used for preparation of payment requests.

1. Refer to Division 01 Section "Payment Procedures" for cost reporting and payment procedures.
2. Contractor shall assign cost to construction activities on the CPM schedule. Costs shall not be assigned to submittal activities unless specified otherwise but may, with Design Professional's approval, be assigned to fabrication and delivery activities. Costs shall be under required principal subcontracts for testing and commissioning activities, operation and maintenance manuals, punch list activities, Project Record Documents, and demonstration and training (if applicable), in the amount of 5 percent of the Contract Sum.
3. Each activity cost shall reflect an accurate value subject to approval by Design Professional.
4. Total cost assigned to activities shall equal the total Contract Sum.

G. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.

H. Computer Software: Prepare schedules using a program that has been developed specifically to manage construction schedules.

2.3 PRELIMINARY CONSTRUCTION SCHEDULE

A. Bar-Chart Schedule: Submit preliminary horizontal bar-chart-type construction schedule within seven days of date established for the Notice to Proceed.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

2.4 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's Construction Schedule within 30 days of date established for the Notice to Proceed. Base schedule on the Preliminary Construction Schedule and whatever updating and feedback was received since the start of Project.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

1. For construction activities that require 3 months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

2.5 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

A. General: Prepare network diagrams using AON (activity-on-node) format.

B. Preliminary Network Diagram: Submit diagram within 14 days of date established for the Notice to Proceed. Outline significant construction activities for the first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

C. CPM Schedule: Prepare Contractor's Construction Schedule using a computerized, time-scaled CPM network analysis diagram for the Work.

1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 30 days after date established for the Notice to Proceed.

    a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of Design Professional's approval of the schedule.

2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.

4. Use "one workday" as the unit of time. Include list of nonworking days and holidays incorporated into the schedule.

D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the preliminary network diagram, prepare a skeleton network to identify probable critical paths.

1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:

    a. Preparation and processing of submittals.
    b. Mobilization and demobilization.
    c. Purchase of materials.
    d. Delivery.
    e. Fabrication.
    f. Utility interruptions.
    g. Installation.
    h. Work by CITY that may affect or be affected by Contractor's activities.
    i. Testing.

2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.

    a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.

E. Initial Issue of Schedule: Prepare initial network diagram from a list of straight "early start-total float" sort. Identify critical activities. Prepare tabulated reports showing the following:

1. Contractor or subcontractor and the Work or activity.
2. Description of activity.
3. Principal events of activity.
4. Immediate preceding and succeeding activities.
5. Early and late start dates.
6. Early and late finish dates.
7. Activity duration in workdays.
8. Total float or slack time.
9. Average size of workforce.
10. Dollar value of activity (coordinated with the Schedule of Values).

F. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:

1. Identification of activities that have changed.

2. Changes in early and late start dates.
3. Changes in early and late finish dates.
4. Changes in activity durations in workdays.
5. Changes in the critical path.
6. Changes in total float or slack time.
7. Changes in the Contract Time.

G. Value Summaries: Prepare two cumulative value lists, sorted by finish dates.

1. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.
2. In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.
3. In subsequent issues of both lists, substitute actual finish dates for activities completed as of list date.
4. Prepare list for ease of comparison with payment requests; coordinate timing with progress meetings.

a. In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.
b. Submit value summary printouts one week before each regularly scheduled progress meeting.

2.6 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions.
7. Accidents.
8. Meetings and significant decisions.
9. Unusual events (refer to special reports).
10. Stoppages, delays, shortages, and losses.
11. Meter readings and similar recordings.
12. Emergency procedures.
13. Orders and requests of authorities having jurisdiction.
14. Change Orders received and implemented.
15. Work Change Directives received and implemented.
16. Services connected and disconnected.
17. Equipment or system tests and startups.
18. Partial Completions and occupancies.
19. Substantial Completions authorized.

B. Material Location Reports: At weekly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site.

C. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a request for interpretation. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.7 SPECIAL REPORTS

A. General: Submit special reports directly to CITY within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.

B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise CITY in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Scheduling Consultant: Engage a consultant to provide planning, evaluation, and reporting using CPM scheduling.

1. In-House Option: CITY may waive the requirement to retain a consultant if Contractor employs skilled personnel with experience in CPM scheduling and reporting techniques. Submit qualifications.
2. Meetings: Scheduling consultant shall attend all meetings related to Project progress, alleged delays, and time impact.

B. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate Actual Completion percentage for each activity.

C. Distribution: Distribute copies of approved schedule to Design Professional CITY, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 013200

SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION

NOT USED.

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

TRANSMITTAL LETTER

Project Number 62230566

Project Title Taxiway E and Taxiway J Rehabilitation

Date _____

TO: _____ Re: _____

ATTN: _____

We are sending you ❑ Attached ❑ Under separate cover via _____ the following items:
❑ Shop Drawings ❑ Prints ❑ Drawings ❑ Samples ❑ Specifications
❑ Copy of Letter ❑ Change Order ❑ _____

Copies	Date	No.	Description

These are transmitted as checked below:

❑ For Approval ❑ Approved as Submitted ❑ Resubmit _____ Copies for Approval
❑ For Your Use ❑ Approved as Noted ❑ Submit _____ Copies for Distribution
❑ As Requested ❑ Returned for Corrections ❑ Return _____ Corrected Prints
❑ For Review and Comment ❑ _____

Remarks: _____

By: _____

Distribution:
❑ Owner
❑ Contractor
❑ Construction Manager
❑ Design Professional
❑ Consultant
❑ Other

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including 00700 General and 00800 Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.

B. Related Sections include the following:

1. Division 01 Section "Payment Procedures" for submitting Applications for Payment and the Schedule of Values.
2. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes and for submitting Coordination Drawings.
3. Division 01 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule.
4. Division 01 Section "Quality Requirements" for submitting test and inspection reports.
5. Division 01 Section "Closeout Procedures" for submitting warranties.
6. Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
7. Division 01 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.
8. Technical Specifications for specific requirements for submittals in those Sections.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Design Professional's responsive action.

B. Informational Submittals: Written information that does not require Design Professional's responsive action. Submittals may be rejected for not complying with requirements.

1.4 SUBMITTAL PROCEDURES

A. General: Electronic copies of CAD Drawings of the Contract Drawings will be provided by Design Professional for Contractor's use in preparing submittals.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Design Professional reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Buy American: Submittals for all manufactured products must include certification of compliance with Buy American requirements as established under Title 49 U.S.C. Section 50101. Submittal must include sufficient information to confirm compliance or submittal will be returned with no action.

D. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.

E. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Design Professional's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Design Professional will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 15 days for review of each resubmittal.

F. Identification: Place a permanent label or title block on each submittal for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately 4 by 5 inches on label or beside title block to record Contractor's review and approval markings and action taken by Design Professional.
3. Include the following information on label for processing and recording action taken:

    a. Project name.
    b. Date.
    c. Name and address of Design Professional.
    d. Name and address of Contractor.
    e. Name and address of subcontractor.
    f. Name and address of supplier.
    g. Name of manufacturer.
    h. Submittal number or other unique identifier, including revision identifier.

        1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).

    i. Number and title of appropriate Specification Section.

j. Drawing number and detail references, as appropriate.
k. Location(s) where product is to be installed, as appropriate.
l. Other necessary identification.

G. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.

H. Additional Copies: Unless additional copies are required for final submittal, and unless Design Professional observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.

1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Design Professional.
2. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.

I. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Design Professional will return submittals without review, received from sources other than Contractor.

1. Transmittal Form: Use document 013300.01.
2. Transmittal Form: Provide locations on form for the following information:

a. Project name.
b. Date.
c. Destination (To:).
d. Source (From:).
e. Names of subcontractor, manufacturer, and supplier.
f. Category and type of submittal.
g. Submittal purpose and description.
h. Specification Section number and title.
i. Drawing number and detail references, as appropriate.
j. Transmittal number.
k. Submittal and transmittal distribution record.
l. Remarks.
m. Signature of transmitter.

3. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Design Professional on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same label information as related submittal.

J. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked "No Exceptions Taken from Design Professional's action stamp."

K. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

L. Use for Construction: Use only final submittals with mark indicating "No Exceptions Taken". by Design Professional.

1.5 CONTRACTOR'S USE OF DESIGN PROFESSIONAL'S CAD FILES

A. General: At Contractor's written request, copies of Design Professional's CAD files will be provided to Contractor for Contractor's use in connection with Project, subject to the following conditions:

AutoCAD 2023 (DWG) Products

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

1. Submit electronic submittals directly to extranet if specifically established for Project.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

    a. Manufacturer's written recommendations.
    b. Manufacturer's product specifications.
    c. Manufacturer's installation instructions.
    d. Standard color charts.
    e. Manufacturer's catalog cuts.
    f. Wiring diagrams showing factory-installed wiring.
    g. Printed performance curves.
    h. Operational range diagrams.
    i. Mill reports.
    j. Standard product operation and maintenance manuals.
    k. Compliance with specified referenced standards.
    l. Testing by recognized testing agency.
    m. Application of testing agency labels and seals.
    n. Notation of coordination requirements.

4. Submit Product Data before or concurrent with Samples.

5. Number of Copies: Submit three copies of Product Data, unless otherwise indicated. Design Professional will return two copies. Mark up and retain one returned copy as a Project Record Document.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

    a. Dimensions.
    b. Identification of products.
    c. Fabrication and installation drawings.
    d. Roughing-in and setting diagrams.
    e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
    f. Shopwork manufacturing instructions.
    g. Templates and patterns.
    h. Schedules.
    i. Design calculations.
    j. Compliance with specified standards.
    k. Notation of coordination requirements.
    l. Notation of dimensions established by field measurement.
    m. Relationship to adjoining construction clearly indicated.
    n. Seal and signature of professional engineer if specified.
    o. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
3. Number of Copies: Submit two opaque (bond) copies of each submittal. Design Professional will return one copy.
4. Number of Copies: Submit three copies of each submittal, unless copies are required for operation and maintenance manuals. Submit five copies where copies are required for operation and maintenance manuals. Design Professional will retain two copies; remainder will be returned. Mark up and retain one returned copy as a Project Record Drawing.
5. Number of Copies: Submit copies of each submittal, as follows, unless otherwise indicated:

    a. Initial Submittal: Submit a preliminary single copy of each submittal where selection of options, color, pattern, texture, or similar characteristics is required. Design Professional will return submittal with options selected.
    b. Final Submittal: Submit three copies, unless copies are required for operation and maintenance manuals. Submit five copies where copies are required for operation and maintenance manuals. Design Professional will retain two copies; remainder will be returned. Mark up and retain one returned copy as a Project Record Document.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:

    a. Generic description of Sample.
    b. Product name and name of manufacturer.
    c. Sample source.
    d. Number and title of appropriate Specification Section.

3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

    a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    b. Samples not incorporated into the Work, or otherwise designated as CITY's property, are the property of Contractor.

4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

    a. Number of Samples: Submit one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Design Professional will return submittal with options selected.

5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

    a. Number of Samples: Submit three sets of Samples. Design Professional will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a Project Record Sample.

        1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
        2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product.
2. Number and name of room or space.
3. Location within room or space.
4. Number of Copies: Submit three copies of product schedule or list, unless otherwise indicated. Design Professional will return two copies.

    a. Mark up and retain one returned copy as a Project Record Document.

F. Contractor's Construction Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation" for Construction Manager's action.

G. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation."

H. Application for Payment: Comply with requirements in Division 01 Section "Payment Procedures."

I. Schedule of Values: Comply with requirements in Division 01 Section "Payment Procedures."

J. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Use CSI Form 1.5A. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.
4. Number of Copies: Submit three copies of subcontractor list, unless otherwise indicated. Design Professional will return two copies.

    a. Mark up and retain one returned copy as a Project Record Document.

2.2 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Design Professional will not return copies.
2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
3. Test and Inspection Reports: Comply with requirements in Division 01 Section "Quality Requirements."

B. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."

C. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of Design Professionals and owners, and other information specified.

E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

L. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

1. Name of evaluation organization.
2. Date of evaluation.
3. Time period when report is in effect.
4. Product and manufacturers' names.
5. Description of product.
6. Test procedures and results.
7. Limitations of use.

M. Schedule of Tests and Inspections: Comply with requirements specified in Division 01 Section "Quality Requirements."

N. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

O. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

P. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.

Q. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."

R. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

S. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:

1. Preparation of substrates.
2. Required substrate tolerances.
3. Sequence of installation or erection.
4. Required installation tolerances.
5. Required adjustments.
6. Recommendations for cleaning and protection.

T. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.

7. Other required items indicated in individual Specification Sections.

U. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

V. Material Safety Data Sheets (MSDSs): Submit information directly to CITY; do not submit to Design Professional.

1. Design Professional will not review submittals that include MSDSs and will return the entire submittal for resubmittal.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Design Professional.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 DESIGN PROFESSIONAL'S ACTION

A. General: Design Professional will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Design Professional will review each submittal, make marks to indicate corrections or modifications required, and return it. Design Professional will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
1. No Exceptions
2. Make Corrections Noted
3. Amend and Resubmit
4. Rejected-See Remarks
5. Received

C. Informational Submittals: Design Professional will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Design Professional will forward each submittal to appropriate party.

D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

E. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including 00700 General and 00800 Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and -control services required by Design Professional, CITY, or authorities having jurisdiction are not limited by provisions of this Section.

C. Related Sections include the following:

1. Division 01 Section "Allowances" for testing and inspecting allowances.
2. Division 01 Section "Construction Progress Documentation" for developing a schedule of required tests and inspections.
3. Technical Specification Sections for specific test and inspection requirements.

1.3 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Design Professional.

C. Laboratory Mockups: Full-size, physical assemblies that are constructed at testing facility to verify performance characteristics.

D. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.

E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.

F. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.

G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.

J. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Design Professional for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Design Professional for a decision before proceeding.

1.5 SUBMITTALS

A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

B. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Description of test and inspection.
3. Identification of applicable standards.
4. Identification of test and inspection methods.
5. Number of tests and inspections required.
6. Time schedule or time span for tests and inspections.
7. Entity responsible for performing tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

C. Reports: Prepare and submit certified written reports that include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

D. Permits, Licenses, and Certificates: For CITY's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.6 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

C. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Fabricator Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.

F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirement for specialists shall not supersede building codes and similar regulations governing the Work.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548, and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following

1. Contractor responsibilities include the following:

a. Provide test specimens representative of proposed products and construction.
b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
d. When testing is complete, remove test specimens, assemblies, mockups, and laboratory mockups; do not reuse products on Project.

2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Design Professional, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

1.7 QUALITY CONTROL

A. CITY Responsibilities: Where quality-control services are indicated as CITY's responsibility, CITY will engage a qualified testing agency to perform these services.

1. CITY will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of the types of testing and inspecting they are engaged to perform.
2. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders.
3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.

B. Tests and inspections not explicitly assigned to CITY are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.

1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

    a. Contractor shall not employ the same entity engaged by CITY, unless agreed to in writing by CITY.

2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."

D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

E. Testing Agency Responsibilities: Cooperate with Design Professional, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Design Professional, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.
6. Do not perform any duties of Contractor.

F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field-curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

H. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Submit schedule within 30 days of date established for the Notice to Proceed.

1. Distribution: Distribute schedule to CITY, Design Professional, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Design Professional.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Design Professional's reference during normal working hours.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas in a manner that eliminates evidence of patching.

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Related Sections include the following:

1. Division 01 Section "Summary" for limitations on utility interruptions and other work restrictions.
2. Division 01 Section "Submittal Procedures" for procedures for submitting copies of implementation and termination schedule and utility reports.
3. Division 01 Section "Execution" for progress cleaning requirements.
4. C-105/C-106 Specification Sections for Mobilization and Maintenance of Traffic
5. P-501 Specification Section "Concrete Paving" for construction and maintenance of cement concrete pavement for temporary roads and paved areas.

1.3 DEFINITIONS

A. Permanent Enclosure: As determined by Design Professional, permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

1.4 USE CHARGES

A. General: Cost or use charges for temporary facilities shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Design Professional, occupants of Project, testing agencies, and authorities having jurisdiction.

B. Sewer Service: Pay sewer service use charges for sewer usage by all entities for construction operations.

C. Water Service: Pay water service use charges for water used by all entities for construction operations.

D. Electric Power Service: Pay electric power service use charges for electricity used by all entities for construction operations.

1.5 SUBMITTALS

A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

1.6 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.7 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before CITY's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Pavement: Comply with Specification Section "Asphalt Paving." and Section "Concrete Paving."

B. Chain-Link Fencing: Minimum 2-inch (50-mm), 0.148-inch- (3.76-mm-) thick, galvanized steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized steel pipe posts; minimum 2-3/8-inch- (60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull posts with galvanized barbed-wire top strand.

C. Portable Chain-Link Fencing: Minimum 2-inch (50-mm), 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized steel pipe posts; minimum 2-3/8-inch- (60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull posts, with 1-5/8-inch- (42-mm-) OD top and bottom rails. Provide concrete bases for supporting posts.

D. Wood Enclosure Fence: Plywood, 8 feet (2.4 m) high, framed with four 2-by-4-inch (50-by-100-mm) rails, with preservative-treated wood posts spaced not more than 8 feet (2.4 m) apart.

E. Gypsum Board: Minimum 1/2 inch (12.7 mm) thick by 48 inches (1219 mm) wide by maximum available lengths; regular-type panels with tapered edges. Comply with ASTMC 36/C 36M.

F. Paint: Comply with requirements in Specification Section P-620 painting Sections.

2.2 TEMPORARY FACILITIES

A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.

B. Common-Use Field Office: Of sufficient size to accommodate needs of construction personnel. Keep office clean and orderly. Furnish and equip offices as follows:

1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
2. Conference room of sufficient size to accommodate meetings of **10** individuals. Provide electrical power service and 120-V ac duplex receptacles, with not less than 1 receptacle on each wall. Furnish room with conference table, chairs, and 4-foot- (1.2-m-) square tack board.
3. Drinking water and private toilet.
4. Coffee machine and supplies.
5. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F (20 to 22 deg C).
6. Lighting fixtures capable of maintaining average illumination of 20 fc (215 lx) at desk height.

C. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.

1. Store combustible materials apart from building.

2.3 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

1. Locate facilities to limit site disturbance as specified in Division 01 Section "Summary."

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

1. Arrange with utility company, CITY, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.

1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.

C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.

D. Water Service: Use of CITY's existing water service facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to CITY. At Substantial Completion, restore these facilities to condition existing before initial use.

1. Where installations below an outlet might be damaged by spillage or leakage, provide a drip pan of suitable size to minimize water damage. Drain accumulated water promptly from pans.

E. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

1. Toilets: Use of CITY's existing toilet facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to CITY. At Substantial Completion, restore these facilities to condition existing before initial use.

F. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

G. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.

H. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.

1. Install electric power service underground, unless otherwise indicated.
2. Connect temporary service to CITY's existing power source, as directed by CITY.

I. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
2. Install lighting for Project identification sign.

J. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install one telephone line for each field office.

1. Provide additional telephone lines for the following:

a. Provide a dedicated telephone line for each facsimile machine and computer in each field office.
b. Provide one telephone line(s) for CITY's use.

2. At each telephone, post a list of important telephone numbers.

a. Police and fire departments.
b. Ambulance service.
c. Contractor's home office.
d. Design Professional's office.
e. Engineers' offices.
f. CITY's office.
g. Principal subcontractors' field and home offices.

3. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.

K. Electronic Communication Service: Provide temporary electronic communication service, including electronic mail, in common-use facilities.

1. Provide WiFi in primary field office.

3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Provide incombustible construction for offices, shops, and sheds located within construction area or within 30 feet (9 m) of building lines. Comply with NFPA 241.
2. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to CITY.

B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas as indicated on Drawings.

1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.

C. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas in same location as permanent roads and paved areas. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.

1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
2. Prepare subgrade and install subbase and base for temporary roads and paved areas according to applicable Project Technical Specifications.
3. Recondition base after temporary use, including removing contaminated material, regrading, proofrolling, compacting, and testing.
4. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion. Repair hot-mix asphalt base-course pavement before installation of final course according to P-401 Specification Section Asphalt Mix Pavement.

D. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

E. Parking: Provide temporary parking areas for construction personnel.

F. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.

1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties nor endanger permanent Work or temporary facilities.
2. Remove snow and ice as required to minimize accumulations.

G. Project Identification and Temporary Signs: Provide Project identification and other signs as indicated on Drawings. Install signs where indicated to inform public and individuals seeking entrance to Project. Unauthorized signs are not permitted.

1. Provide temporary, directional signs for construction personnel and visitors.
2. Maintain and touchup signs so they are legible at all times.

H. Waste Disposal Facilities: Comply with requirements specified in Division 01 Section "Construction Waste Management and Disposal."

I. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with Division 01 Section "Execution" for progress cleaning requirements.

J. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

1. Comply with work restrictions specified in Division 01 Section "Summary."

B. Temporary Erosion and Sedimentation Control: Comply with requirements specified in Specification Sections C-102 for Temporary Air and Water Pollution, Soil Erosion, and Siltation Control and P-151 for clearing and Grubbing.

C. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.

1. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.

D. Stormwater Control: Comply with authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

E. Tree and Plant Protection: Comply with requirements specified in Division 01 Section "Temporary Tree and Plant Protection."

F. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.

G. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.

1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Provide CITY with one set of keys

H. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.

I. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

3.5 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of Contractor. CITY reserves right to take possession of Project identification signs.
2. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
3. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION 015000

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including 00700 General and 00800 Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.

B. Related Sections include the following:
   1. Division 01 Section "Closeout Procedures" for submitting warranties for contract closeout.
   2. Technical Specifications for specific requirements for warranties on products and installations specified to be warranted.

1.3 DEFINITIONS

A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

   1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation, shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
   2. New Products: Items that have not previously been incorporated into another project or facility, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
   3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

1.4 SUBMITTALS

A. Product List: Submit a list, in tabular form, showing specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.

1. Coordinate product list with Contractor's Construction Schedule and the Submittals Schedule..
2. Form: Tabulate information for each product under the following column headings:

a. Specification Section number and title.
b. Generic name used in the Contract Documents.
c. Proprietary name, model number, and similar designations.
d. Manufacturer's name and address.
e. Supplier's name and address.
f. Installer's name and address.
g. Projected delivery date or time span of delivery period.
h. Identification of items that require early submittal approval for scheduled delivery date.

3. Initial Submittal: Within thirty (30) days after date of commencement of the Work, submit three (3) copies of initial product list. Include a written explanation for omissions of data and for variations from Contract requirements.

a. At Contractor's option, initial submittal may be limited to product selections and designations that must be established early in Contract period.

4. Completed List: Within sixty (60) days after date of commencement of the Work, submit three (3) copies of completed product list. Include a written explanation for omissions of data and for variations from Contract requirements.
5. Design Professional's Action: Design Professional will respond in writing to Contractor within fifteen (15) days of receipt of completed product list. Design Professional's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Design Professional's response, or lack of response, does not constitute a waiver of requirement that products comply with the Contract Documents.

B. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use Form 016300 Substitute Request.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified material or product cannot be provided.
b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by CITY and separate contractors that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as

performance, weight, size, durability, visual effect, and specific features and requirements indicated.

d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. List of similar installations for completed projects with project names and addresses and names and addresses of Design Professionals and owners.
g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
j. Cost information, including a proposal of change, if any, in the Contract Sum.
k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Design Professional's Action: If necessary, Design Professional will request additional information or documentation for evaluation within one week of receipt of a request for substitution. Design Professional will notify Contractor of acceptance or rejection of proposed substitution within fifteen (15) days of receipt of request, or seven (7) days of receipt of additional information or documentation, whichever is later.

a. Form of Acceptance: Change Order.
b. Use product specified if Design Professional cannot make a decision on use of a proposed substitution within time allocated.

C. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Store cementitious products and materials on elevated platforms.
5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
7. Protect stored products from damage and liquids from freezing.

1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to CITY.
2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for CITY.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: Forms are included with the Specifications. Prepare a written document using appropriate form properly executed.
3. Refer to Divisions 2 through 49 Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged, and unless otherwise indicated, that are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. CITY reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Design Professional will make selection.
5. Where products are accompanied by the term "match sample," sample to be matched is Design Professional's.
6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.

3. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
4. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.

5. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed or an unnamed product, that complies with requirements. Comply with provisions in "Comparable Products" Article for consideration of an unnamed product.
6. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.
7. Basis-of-Design Products: Where Specifications name a project and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.

2.2 PRODUCT SUBSTITUTIONS

A. Timing: Design Professional will consider requests for substitution if received within thirty (30) days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Design Professional.

B. Conditions: Design Professional will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Design Professional will return requests without action, except to record noncompliance with these requirements:

1. Requested substitution offers CITY a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities CITY must assume. CITY's additional responsibilities may include compensation to Design Professional for redesign and evaluation services, increased cost of other construction by CITY, and similar considerations.
2. Requested substitution does not require extensive revisions to the Contract Documents.
3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
4. Substitution request is fully documented and properly submitted.
5. Requested substitution will not adversely affect Contractor's Construction Schedule.
6. Requested substitution has received necessary approvals of authorities having jurisdiction.
7. Requested substitution is compatible with other portions of the Work.
8. Requested substitution has been coordinated with other portions of the Work.
9. Requested substitution provides specified warranty.
10. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

2.3 COMPARABLE PRODUCTS

A. Conditions: Design Professional will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Design Professional will return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of Design Professionals and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

CITY OF FOUNTAINS
HEART OF THE NATION

KANSAS CITY
MISSOURI

SUBSTITUTION REQUEST

Project Number: 62230566

Project Title: Taxiway E and Taxiway J Rehabilitation

To: _____ Authorization Number: _____
_____ From: _____
Re: _____ Date: _____
_____ Contract For: _____

Specification Title: _____
Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____
Manufacturer: _____ Address: _____ Phone No. _____
Trade Name: _____ Model No. _____
Installer: _____ Address: _____ Phone No. _____
History: ❑ New Product ❑ 2-5 years old ❑ 5-10 years old ❑ More than 10 years old
Differences between proposed substitution and specified product: _____
_____
_____
❑ Point-by-point comparative data attached – REQUIRED

Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance, service, and availability of replacement parts, as applicable, are available.
- Proposed substitution will not affect or delay Progress Schedule, except as stated below.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances, except as stated below.
- Payment will be made for changes to building design, including architectural or engineering design, detailing, licenses, royalties, and construction costs caused by the requested substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be completed in all respects.

Reason for not providing specified item: _____
_____
_____
_____

Similar Installation:
Project: _____ Design Professional: _____
Address: _____ Owner: _____
_____ Date Installed: _____
Proposed substitution affects other parts of Work: ❑ No ❑ Yes; explain _____
_____
_____
Savings to Owner for accepting substitution: _____

Proposed substitution changes Contract Time: ❑ No ❑ Yes; add/deduct _____ days.

Supporting Data Attached:
❑ Product Data ❑ Drawings ❑ Tests ❑ Reports ❑ Samples ❑ _____
Attachments: _____

Submitted by: _____
Signature: _____
Firm: _____
Address: _____

Telephone: _____ Fax: _____ E-Mail: _____

Additional Comments: ❑ Contractor ❑ Subcontractor ❑ Supplier ❑ Manufacturer ❑ DP ❑ _____

DESIGN PROFESSIONAL'S REVIEW AND ACTION
❑ Substitution approved – Make submittals in accordance with Specification Section 013300.
❑ Substitution approved as noted – Make submittals in accordance with Specification Section 013300.
❑ Substitution rejected – Use specified materials.
❑ Substitution Request received too late – Use specified materials.

Signed by: _____ Date: _____

Distribution:
❑ City
❑ Design Professional
❑ Contractor
❑ Consultant
❑ Construction Manager
❑ Other

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. General installation of products.
4. Coordination of CITY-installed products.
5. Progress cleaning.
6. Starting and adjusting.
7. Protection of installed construction.
8. Correction of the Work.

B. Related Sections include the following:

1. Division 01 Section "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.
2. Division 01 Section "Submittal Procedures" for submitting surveys.
3. Division 01 Section "Cutting and Patching" for procedural requirements for cutting and patching necessary for the installation or performance of other components of the Work.
4. Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of CITY-accepted deviations from indicated lines and levels, and final cleaning.

1.3 SUBMITTALS

A. Qualification Data: For land surveyor to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

B. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.

C. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

D. Certified Surveys: Submit two (2) copies signed by land surveyor.

E. Final Property Survey: Submit ten (10) copies showing the Work performed and record survey data.

1.4 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

1. Before construction, verify the location and points of connection of utility services.

B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

a. Description of the Work.
b. List of detrimental conditions, including substrates.
c. List of unacceptable installation tolerances.
d. Recommended corrections.

2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility and CITY that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Design Professional. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents. Submit requests on Form 00930, "Request for Interpretation."

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Design Professional promptly.

B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
3. Inform installers of lines and levels to which they must comply.
4. Check the location, level and plumb, of every major element as the Work progresses.
5. Notify Design Professional when deviations from required lines and levels exceed allowable tolerances.
6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Design Professional.

3.4 FIELD ENGINEERING

A. Identification: CITY will identify existing benchmarks, control points, and property corners.

B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

1. Do not change or relocate existing benchmarks or control points without prior written approval of Design Professional. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Design Professional before proceeding.
2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

C. Benchmarks: Establish and maintain a minimum of two (2) permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

D. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

E. Final Property Survey: Prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.

1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.
2. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.5 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
4. Maintain minimum headroom clearance of [8 feet (2.4 m)] <**Insert dimension**> in spaces without a suspended ceiling.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Design Professional.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 RESERVED

3.7 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F (27 deg C).
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.

C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 1 Section "Quality Requirements."

3.9 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.10 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section "Cutting and Patching."

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 017300

SECTION 017329 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes procedural requirements for cutting and patching.

1.3 DEFINITIONS

A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.

B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.4 SUBMITTALS

A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:

1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
2. Changes to Existing Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
3. Products: List products to be used and firms or entities that will perform the Work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utility Services and Mechanical/Electrical Systems: List services/systems that cutting and patching procedures will disturb or affect. List services/systems that will be relocated and those that will be temporarily out of service. Indicate how long services/systems will be disrupted.
6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
7. Design Professional's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

1.5 QUALITY ASSURANCE

A. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operating elements include the following:

1. Primary operational systems and equipment.
2. Control systems.
3. Communication systems.
4. Electrical wiring systems.

B. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Design Professional's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1.6 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

B. In-Place Materials: Use materials identical to in-place materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.

1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut.

B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

3.3 PERFORMANCE

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.
5. Proceed with patching after construction operations requiring cutting are complete.

C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
b. Restore damaged pipe covering to its original condition.

D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION 017329

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for the following:
   1. Disposing of nonhazardous demolition and construction waste.

B. Related Sections include the following:
   1. Division 01 Section "Temporary Facilities and Controls" for environmental-protection measures during construction.
   2. Technical Specification P-101, for disposal of waste resulting from site clearing and removal of above and below-grade improvements.

1.3 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.4 PERFORMANCE GOALS

A. Salvage/Recycle Goals: CITY's goal is to salvage and recycle as much nonhazardous demolition and construction waste as possible including the following materials:

1. Demolition Waste:

    a. Asphaltic concrete paving.
    b. Concrete.

2. Construction Waste:

    a. Site-clearing waste.

1.5 SUBMITTALS

A. Waste Management Plan: Submit three (3) copies of plan within seven (7) days of date established for the Notice to Proceed.

B. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit three (3) copies of report. Include separate reports for demolition and construction waste. Include the following information:

1. Material category.
2. Generation point of waste.
3. Total quantity of waste in tons.
4. Quantity of waste salvaged, both estimated and actual in tons.
5. Quantity of waste recycled, both estimated and actual in tons.
6. Total quantity of waste recovered (salvaged plus recycled) in tons.
7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.

C. Waste Reduction Calculations: Before request for Substantial Completion, submit three (3) copies of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.

D. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

E. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

F. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

G. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

1.6 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

1.7 WASTE MANAGEMENT PLAN

A. General: Develop plan consisting of waste identification, waste reduction work plan, and cost/revenue analysis. Include separate sections in plan for demolition and construction waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

B. Waste Identification: Indicate anticipated types and quantities of demolition, site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.

C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.

D. Cost/Revenue Analysis: Indicate total cost of waste disposal as if there was no waste management plan and net additional cost or net savings resulting from implementing waste management plan. Include the following:

1. Total quantity of waste.
2. Estimated cost of disposal (cost per unit). Include hauling and tipping fees and cost of collection containers for each type of waste.
3. Total cost of disposal (with no waste management).
4. Revenue from salvaged materials.
5. Revenue from recycled materials.
6. Savings in hauling and tipping fees by donating materials.
7. Savings in hauling and tipping fees that are avoided.
8. Handling and transportation costs. Include cost of collection containers for each type of waste.
9. Net additional cost or net savings from waste management plan.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement waste management plan as approved by Design Professional. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

1. Comply with Division 01 Section "Temporary Facilities and Controls" for operation, termination, and removal requirements.

B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at Project site full time for duration of Project.

C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.

1. Distribute waste management plan to everyone concerned within three (3) days of submittal return.
2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.

D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
2. Comply with Division 01 Section "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 SALVAGING DEMOLITION WASTE

A. Salvaged Items for Reuse in the Work:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until installation.
4. Protect items from damage during transport and storage.
5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.

B. Salvaged Items for Sale: Not permitted on Project site.

C. Salvaged Items for CITY's Use:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to CITY.
4. Transport items to CITY's storage area designated by CITY.
5. Protect items from damage during transport and storage.

3.3 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

A. General: Recycle paper and beverage containers used by on-site workers.

B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.

C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.

1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

    a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste off CITY's property and transport to recycling receiver or processor.

3.4 RECYCLING DEMOLITION WASTE

A. Asphaltic Concrete Paving: Break up and transport paving to asphalt-recycling facility.

B. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.

C. Metals: Separate metals by type.

1. Structural Steel: Stack members according to size, type of member, and length.
2. Remove and dispose of bolts, nuts, washers, and other rough hardware.

3.5 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.

3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Site-Clearing Wastes: Chip brush, branches, and trees at landfill facility.

1. Comply with requirements in Division 32 Section "Plants" for use of chipped organic waste as organic mulch.

C. Wood Materials:

1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

3.6 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

C. Disposal: Transport waste materials off CITY's property and legally dispose of them.

END OF SECTION 017419

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including 00700 General and 00800 Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Inspection procedures.
2. Warranties.
3. Final cleaning.

B. Related Sections include the following:

1. Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
2. Division 01 Section "Execution Requirements" for progress cleaning of Project site.
3. Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
4. Technical Specifications for specific closeout and special cleaning requirements for products of those Sections.

1.3 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Advise CITY of pending insurance changeover requirements.
3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Obtain and submit releases permitting CITY unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.
6. Deliver tools, spare parts, extra materials, and similar items to location designated by CITY. Label with manufacturer's name and model number where applicable.

7. Make final changeover of permanent locks and deliver keys to CITY. Advise CITY's personnel of changeover in security provisions.
8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
9. Submit changeover information related to CITY's occupancy, use, operation, and maintenance.
10. Complete final cleaning requirements, including touchup painting.
11. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Design Professional will either proceed with inspection or notify Contractor of unfulfilled requirements. Design Professional will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Design Professional, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
2. Submit certified copy of Design Professional's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Design Professional. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report and warranty.
5. Instruct CITY's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Design Professional will either proceed with inspection or notify Contractor of unfulfilled requirements. Design Professional will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three (3) copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction. Use Form 01290.13 Punch List.

1. Include the following information at the top of each page:

a. Project name.
b. Date.
c. Name of Design Professional.
d. Name of Contractor.
e. Page number.

1.6 WARRANTIES

A. Submittal Time: Submit written warranties on request of Design Professional for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Partial Occupancy: Submit properly executed warranties within fifteen (15) days of completion of designated portions of the Work that are completed and occupied or used by CITY during construction period by separate agreement with Contractor.

C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (115-by-280-mm) paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
f. Remove labels that are not permanent.
g. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.

h. Wipe surfaces of mechanical and electrical equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
i. Replace parts subject to unusual operating conditions.
j. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
k. Leave Project clean and ready for occupancy.

C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on CITY's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 017700

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.

B. Related Sections include the following:
1. Division 01 Section "Closeout Procedures" for general closeout procedures.
2. Technical Specifications for specific requirements for Project Record Documents of products in those sections.

1.3 SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit one (1) set of marked-up Record Prints.
2. Number of Copies: Submit copies of Record Drawings as follows:

a. Initial Submittal: Submit one (1) set of plots from corrected Record CAD Drawings and one (1) set of marked-up Record Prints. Design Professional will initial and date each plot and mark whether general scope of changes, additional information recorded, and quality of drafting are acceptable. Design Professional will return plots and prints for organizing into sets, printing, binding, and final submittal.
b. Final Submittal: Submit one (1) set of marked-up Record Prints, one (1) set Record CAD Drawings files, one (1) set of Record CAD Drawing plots, and three (3) copies printed from Record plots. Print each Drawing, whether or not changes and additional information were recorded.

1) Electronic Media: Flash Drive.

B. Record Specifications: Submit one (1) copy of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit one (1) copy of each Product Data submittal.

1. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in the manual instead of submittal as Record Product Data.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.

1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

    a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    b. Accurately record information in an understandable drawing technique.
    c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

2. Content: Types of items requiring marking include, but are not limited to, the following:

    a. Dimensional changes to Drawings.
    b. Revisions to details shown on Drawings.
    c. Locations and depths of underground utilities.
    d. Revisions to routing of piping and conduits.
    e. Revisions to electrical circuitry.
    f. Actual equipment locations.
    g. Duct size and routing.
    h. Locations of concealed internal utilities.
    i. Changes made by Change Order or Work Change Directive.
    j. Changes made following Design Professional's written orders.
    k. Details not on the original Contract Drawings.
    l. Field records for variable and concealed conditions.
    m. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Work Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Record Transparencies: Immediately before inspection for Certificate of Substantial Completion, review marked-up Record Prints with Design Professional. When authorized, prepare a full set of corrected transparencies of the Contract Drawings and Shop Drawings.

1. Incorporate changes and additional information previously marked on Record Prints. Erase, redraw, and add details and notations where applicable.
2. Refer instances of uncertainty to Design Professional for resolution.
3. CITY will furnish Contractor one set of transparencies of the Contract Drawings for use in recording information.
4. Print the Contract Drawings and Shop Drawings for use as Record Transparencies. Design Professional will make the Contract Drawings available to Contractor's print shop.

C. Record CAD Drawings: Immediately before inspection for Certificate of Substantial Completion, review marked-up Record Prints with Design Professional. When authorized, prepare a full set of corrected CAD Drawings of the Contract Drawings, as follows:

1. Format: Same CAD program, version, and operating system as the original Contract Drawings.
2. Incorporate changes and additional information previously marked on Record Prints. Delete, redraw, and add details and notations where applicable.
3. Refer instances of uncertainty to Design Professional for resolution.
4. Design Professional will furnish Contractor one set of CAD Drawings of the Contract Drawings for use in recording information.

    a. Design Professional makes no representations as to the accuracy or completeness of CAD Drawings as they relate to the Contract Drawings.
    b. CAD Software Program: The Contract Drawings are available in AutoCAD Civil 3D.

D. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing Record Drawings where Design Professional determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.

1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
2. Consult with Design Professional for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared Record Drawings into Record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.

E. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Record Transparencies: Organize into unbound sets matching Record Prints. Place transparencies in durable tube-type drawing containers with end caps. Mark end cap of each container with identification. If container does not include a complete set, identify Drawings included.

3. Record CAD Drawings: Organize CAD information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each CAD file.
4. Identification: As follows:

    a. Project name.
    b. Date.
    c. Designation "PROJECT RECORD DRAWINGS."
    d. Name of Design Professional.
    e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of the manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
5. Note related Change Orders and Record Drawings where applicable.

2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Drawings Product Data where applicable.

2.4 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.

B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Design Professional's reference during normal working hours.

END OF SECTION 017839

BIDDER'S LIST STATISTICS – 49 CFR PART 26.11

Dear Bidder / Proposer:

The Kansas City Aviation Department (MCI) maintains bidding statistics, regarding ALL firms bidding on prime contracts and subcontracts on US Department of Transportation (DOT) assisted projects in accordance to the federal regulation 49 CFR Part 26.11. Include copies of this form with your bid package to ANY TIER SUBCONTRACTORS. Return the form from each proposer **with your bid package**. The bid package must have a Bidder' List for the prime contractor as well. Thank you for your assistance with this request. If you have any questions, comments or suggestions, please contact Andy Adkins, Disadvantaged Business Enterprise Liaison Officer (816)513-1814.

This information will only be used for statistical purposes per 49 CFR Part 26.11

Firm Name: Hi-Lite Airfield Services, LLC

Firm Address: 20128 NYS 12F, Watertown, NY 13601

Company's Type of Work (optional): Pavement Markings, Marking Removal

NAICS Code(s) (optional) 237310

Month/Year firm started: 09/1990 Status: Non-DBE X DBE ___

Company Owner(s) Background (optional)

___African American	___Asian	___Male
___Hispanic	___Native American	___Female
___Polynesian	___Caucasian	___Other _____

Annual Gross Receipts of the Firm: (check one)

$0 to $500,000 _____ $500,000 - $1,000,000 _____ $1 Million - $5 Million _____

$5 Million - $10 Million _____ $10 Million - $16.7 Million_____ Above $16.7 Million X

Name / Date of Solicitation: Taxiway E and Taxiway J Rehabilitation - 3/21/23

BIDDER'S LIST STATISTICS – 49 CFR PART 26.11

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This information will only be used for statistical purposes per 49 CFR Part 26.11

Firm Name: Realm Construction, Inc.

Firm Address: 604 SE Industrial Drive

Blue Springs, MO 64014

Company's Type of Work (optional): _____

NAICS Code(s) (optional) _____

Month/Year firm started: April-1992 status: Non-DBE ___ DBE X

Company Owner(s) Background (optional)

___African American	___Asian	___Male
___Hispanic	___Native American	X Female
___Polynesian	___Caucasian	___Other _____

Annual Gross Receipts of the Firm: (check one)

$0 to $500,000 ____ $500,000 - $1,000,000 ____ $1 Million - $5 Million ____

$5 Million - $10 Million _____ $10 Million - $16.7 Million____ Above $16.7 Million X

Name / Date of Solicitation: Robert Taylor / 03-21-2023

BIDDER'S LIST STATISTICS – 49 CFR PART 26.11

Dear Bidder / Proposer:

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This information will only be used for statistical purposes per 49 CFR Part 26.11

Firm Name: Capital Electric Construction Co., Inc.

Firm Address: 2801 Fairfax Trafficway

Kansas City, KS 66115

Company's Type of Work (optional): Electrical Contractor

NAICS Code(s) (optional) 238210

Month/Year firm started: 3/1957 Status: Non-DBE X DBE ___

Company Owner(s) Background (optional)

___African American ___Asian ___Male

___Hispanic ___Native American ___Female

___Polynesian ___Caucasian ___Other _____

Annual Gross Receipts of the Firm: (check one)

$0 to $500,000 _____ $500,000 - $1,000,000 _____ $1 Million - $5 Million _____

$5 Million - $10 Million _____ $10 Million - $16.7 Million_____ Above $16.7 Million X

Name / Date of Solicitation: _____

BIDDER'S LIST STATISTICS – 49 CFR PART 26.11

Dear Bidder / Proposer:

The Kansas City Aviation Department (MCI) maintains bidding statistics, regarding ALL firms bidding on prime contracts and subcontracts on US Department of Transportation (DOT) assisted projects in accordance to the federal regulation 49 CFR Part 26.11. Include copies of this form with your bid package to ANY TIER SUBCONTRACTORS. Return the form from each proposer **with your bid package**. The bid package must have a Bidder' List for the prime contractor as well. Thank you for your assistance with this request. If you have any questions, comments or suggestions, please contact Andy Adkins, Disadvantaged Business Enterprise Liaison Officer (816)513-1814.

This information will only be used for statistical purposes per 49 CFR Part 26.11

Firm Name: Ideker, Inc.

Firm Address: 4614 South 40th Street

St. Joseph, MO 64503

Company's Type of Work (optional): Heavy Civil Construction

NAICS Code(s) (optional) _____

Month/Year firm started: 1971 Status: Non-DBE X DBE ___

Company Owner(s) Background (optional)

___African American ____Asian ____Male

____Hispanic ____Native American ____Female

____Polynesian ____X____Caucasian ____Other _____

Annual Gross Receipts of the Firm: (check one)

$0 to $500,000 _____ $500,000 - $1,000,000 _____ $1 Million - $5 Million _____

$5 Million - $10 Million _____ $10 Million - $16.7 Million_____ Above $16.7 Million ____X____

Name / Date of Solicitation: March 21st, 2023

BIDDER'S LIST STATISTICS – 49 CFR PART 26.11

Dear Bidder / Proposer:

The Kansas City Aviation Department (MCI) maintains bidding statistics, regarding ALL firms bidding on prime contracts and subcontracts on US Department of Transportation (DOT) assisted projects in accordance to the federal regulation 49 CFR Part 26.11. Include copies of this form with your bid package to ANY TIER SUBCONTRACTORS. Return the form from each proposer **with your bid package**. The bid package must have a Bidder' List for the prime contractor as well. Thank you for your assistance with this request. If you have any questions, comments or suggestions, please contact Andy Adkins, Disadvantaged Business Enterprise Liaison Officer (816)513-1814.

This information will only be used for statistical purposes per 49 CFR Part 26.11

Firm Name: Dayspring Electric Inc.

Firm Address: 21170 Stayyard Rd.

Tonganoxie KS 66086

Company's Type of Work (optional): Electrical Contractor

NAICS Code(s) (optional) 238210

Month/Year firm started: 11/2005 Status: Non-DBE ___ DBE X

Company Owner(s) Background (optional)

___African American ___Asian ___Male

___Hispanic ___Native American X Female

___Polynesian X Caucasian ___Other _____

Annual Gross Receipts of the Firm: (check one)

$0 to $500,000 X $500,000 - $1,000,000 ____ $1 Million - $5 Million ____

$5 Million - $10 Million _____ $10 Million - $16.7 Million____ Above $16.7 Million ____

Name / Date of Solicitation: _____

BIDDER'S LIST STATISTICS – 49 CFR PART 26.11

Dear Bidder / Proposer:

The Kansas City Aviation Department (MCI) maintains bidding statistics, regarding ALL firms bidding on prime contracts and subcontracts on US Department of Transportation (DOT) assisted projects in accordance to the federal regulation 49 CFR Part 26.11. Include copies of this form with your bid package to ANY TIER SUBCONTRACTORS. Return the form from each proposer **with your bid package**. Thank you for your assistance with this request. If you have any questions, comments or suggestions, please contact Ian Redhead, Disadvantaged Business Enterprise Liaison Officer (816) 243-3100.

This information will only be used for statistical purposes per 49 CFR Part 26.11

Firm Name: Dye Electric

Firm Address: 1601 E 18th St. Suite 170

Kansas City, MO 64108

Company's Type of Work (optional): _____

NAICS Code(s) (optional) 238210

Month/Year firm started: 02/2012 Status: Non-DBE ___ DBE X

Company Owner(s) Background (optional)

X African American	___Asian	___Male
___Hispanic	___Native American	___Female
___Polynesian	___Caucasian	___Other _____

Annual Gross Receipts of the Firm: (check one)

$0 to $500,000 _____ $500,000 - $1,000,000 _____ $1 Million - $5 Million X

$5 Million - $10 Million _____ $10 Million - $16.7 Million_____ Above $16.7 Million _____

Name / Date of Solicitation: _____

BIDDER'S LIST STATISTICS – 49 CFR PART 26.11

Dear Bidder / Proposer:

The Kansas City Aviation Department (MCI) maintains bidding statistics, regarding ALL firms bidding on prime contracts and subcontracts on US Department of Transportation (DOT) assisted projects in accordance to the federal regulation 49 CFR Part 26.11. Include copies of this form with your bid package to ANY TIER SUBCONTRACTORS. Return the form from each proposer **with your bid package**. The bid package must have a Bidder' List for the prime contractor as well. Thank you for your assistance with this request. If you have any questions, comments or suggestions, please contact Andy Adkins, Disadvantaged Business Enterprise Liaison Officer (816)513-1814.

This information will only be used for statistical purposes per 49 CFR Part 26.11

Firm Name: CLYMORE TRUCKING CO.

Firm Address: 530 S. 291 Hwy.

INDEPENDENCE MO 64056

Company's Type of Work (optional): DUMP TRUCKS

NAICS Code(s) (optional) _____

Month/Year firm started: 1985 Status: Non-DBE ___ DBE X

Company Owner(s) Background (optional)

___African American	___Asian	___Male
___Hispanic	___Native American	X Female
___Polynesian	X Caucasian	___Other _____

Annual Gross Receipts of the Firm: (check one)

$0 to $500,000 ____ $500,000 - $1,000,000 ____ $1 Million - $5 Million X

$5 Million - $10 Million _____ $10 Million - $16.7 Million____ Above $16.7 Million ____

Name / Date of Solicitation: Jessica Clymore 3-22-23

BIDDER'S LIST STATISTICS – 49 CFR PART 26.11

Dear Bidder / Proposer:

The Kansas City Aviation Department (MCI) maintains bidding statistics, regarding ALL firms bidding on prime contracts and subcontracts on US Department of Transportation (DOT) assisted projects in accordance to the federal regulation 49 CFR Part 26.11. Include copies of this form with your bid package to ANY TIER SUBCONTRACTORS. Return the form from each proposer **with your bid package**. The bid package must have a Bidder' List for the prime contractor as well. Thank you for your assistance with this request. If you have any questions, comments or suggestions, please contact Andy Adkins, Disadvantaged Business Enterprise Liaison Officer (816)513-1814.

This information will only be used for statistical purposes per 49 CFR Part 26.11

Firm Name: CONSTRUCTION ANCHORS INC.

Firm Address: 13900 E. 350 HWY

KANSAS CITY, MISSOURI 64138

Company's Type of Work (optional): SUPPLIER - MFG ANCHOR BOLTS, EXPANSION JOINT

NAICS Code(s) (optional) _____

Month/Year firm started: 1960 Status: Non-DBE ___ DBE X WBE | SBE | SBE

Company Owner(s) Background (optional)

___African American ___Asian ___Male

___Hispanic ___Native American X Female

___Polynesian ___Caucasian ___Other _____

Annual Gross Receipts of the Firm: (check one)

$0 to $500,000 ____ $500,000 - $1,000,000 ____ $1 Million - $5 Million ____

$5 Million - $10 Million ____ $10 Million - $16.7 Million ____ Above $16.7 Million X

Name / Date of Solicitation: Robert J. Drew 3.23.2023

BIDDER'S LIST STATISTICS – 49 CFR PART 26.11

Dear Bidder / Proposer:

The Kansas City Aviation Department (MCI) maintains bidding statistics, regarding ALL firms bidding on prime contracts and subcontracts on US Department of Transportation (DOT) assisted projects in accordance to the federal regulation 49 CFR Part 26.11. Include copies of this form with your bid package to ANY TIER SUBCONTRACTORS. Return the form from each proposer **with your bid package**. The bid package must have a Bidder' List for the prime contractor as well. Thank you for your assistance with this request. If you have any questions, comments or suggestions, please contact Andy Adkins, Disadvantaged Business Enterprise Liaison Officer (816)513-1814.

This information will only be used for statistical purposes per 49 CFR Part 26.11

Firm Name: PH Trucking, LLC

Firm Address: 11512 State Hwy 4
Rogersville, MO. 65742

Company's Type of Work (optional): _____

NAICS Code(s) (optional) _____

Month/Year firm started: _____ Status: Non-DBE ___ DBE X

Company Owner(s) Background (optional)

___African American ___Asian ___Male

___Hispanic ___Native American ___Female

___Polynesian ___Caucasian ___Other _____

Annual Gross Receipts of the Firm: (check one)

$0 to $500,000 ____ $500,000 - $1,000,000 X $1 Million - $5 Million ____

$5 Million - $10 Million ____ $10 Million - $16.7 Million____ Above $16.7 Million ____

Name / Date of Solicitation: Patty Hill 3/20/23

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This information will only be used for statistical purposes per 49 CFR Part 26.11

Firm Name: R L Hannah & Sons Trucking,Inc.

Firm Address: 28110 SW Outer Rd

Harrisonville,MO. 64701

Company's Type of Work (optional): trucking

NAICS Code(s) (optional) 484121

Month/Year firm started: 1974 Status: Non-DBE ____ DBE x

Company Owner(s) Background (optional)

____African American ____Asian ____Male

____Hispanic ____Native American x Female

____Polynesian x Caucasian ____Other ____

Annual Gross Receipts of the Firm: (check one)

$0 to $500,000 ____ $500,000 - $1,000,000 ____ $1 Million - $5 Million ____

$5 Million - $10 Million x $10 Million - $16.7 Million____ Above $16.7 Million ____

Name / Date of Solicitation: Sharon Green March 20,2023

City of Kansas City, Mo.

BUSINESS LICENSE

Revenue Division

For the operation of:

L0393003776

CID-91632851712

IDEKER INC
4614 S 40TH ST
SAINT JOSEPH MO 64503-2151

2023

This license is effective until December 31, 2023. You have until the last day of February to renew.

Pursuant to City ordinances and conditioned upon payment of the requested fee or tax due, subject to audit and zoning requirements, license is hereby granted for the term and purpose stated.

KANSAS CITY
MISSOURI

1173654656

Post at location licensed

Mari Ruck, *Commissioner of Revenue*

This license may be suspended or revoked in accordance with City ordinances.

This license remains the property of the City of Kansas City, Mo.

FINANCE DEPARTMENT ◆ REVENUE DIVISION ◆ BUSINESS LICENSE SECTION

414 E 12th St. 1st Floor ◆ Kansas City, MO 64106-2786 ◆ (816) 513-1120

SAFETY PROGRAM

STATEMENT OF SAFETY POLICY

Ideker, Inc. has always believed that our employees are our most important asset. We will always place the highest priority on safe operations and on the safety and health of employees. Ideker, Inc. considers no phase of its operation or administration more important than safety and health. We will provide and maintain safe and healthful working conditions, and we will establish and insist on safe work methods and practices at all times.

We will involve both management and employees in planning, developing, and implementing safety and health protection.

Each level of management must reflect an interest in company safety and health and must set a good example by complying with company rules for safety and health protection. Management interest must be vocal, visible, and continuous from owner to foreman.

All employees must recognize their responsibility to prevent injuries and illnesses and must take necessary actions to do so. Their performance in this regard will be measured along with overall performance.

By accepting mutual responsibility to operate safely, we all will contribute to the well-being of one another and consequently the company.

ASSIGNMENT OF SAFETY AND HEALTH RESPONSIBILITIES

OWNER

- Establish a policy to hold the worksite in compliance with all applicable Federal and State standards and to provide safe and healthful work and working conditions for every person at the site.
- Provide the leadership and resources to carry out the state company safety and health policy.
- Resolve conflicts of priority where safety and health are concerned.
- Evaluate the effectiveness of managers and supervisors in the safety and health program.

- Keep in touch with employees and the company's safety and health activities, assist in giving direction and authority for those activities, and visibly show your involvement.
- Thoroughly understand hazards and potential hazards that employees may be exposed to at the worksite. Ensure that a comprehensive program of prevention and control is set up and operating.
- Provide a reliable system for employees to report to appropriate managers any conditions and situations that appear hazardous. Ensure that responses to such reports are appropriate and timely.
- Establish a plant/equipment maintenance program to ensure proper care and functioning of equipment/plant.
- Review accident reports to keep informed of causes and trends.
- Establish training programs that improve the ability of all employees, including managers and supervisors, to recognize and understand hazards and to protect themselves and others.

SAFETY AND HEALTH DIRECTOR

- Maintain safety and health expertise through training, reading, conferences, and use of outside experts.
- Keep informed of and be able to interpret laws and standards dealing with employee risk reduction in this industry and illness and injury record keeping requirements.
- Act as the eyes, ears, and "conscience" of the owners where employee safety and health are concerned.
- Keep owners advised of all the significant safety and health developments, including the status and results of hazard evaluations, inspections, and accident investigations, and any serious problems or deficiencies in the overall safety and health program.
- Working with supervisors, foremen, hourly employees, and experts as needed, develop a complete inventory of hazards and potential hazards, and plan a program of prevention and control.
- Provide technical assistance and support to supervisors and employees in their safety and health activities.
- Assist management to ensure that appropriate general job site safety and health rules are developed, communicated, and understood.
- Assist in or oversee the development for personal protection, industrial hygiene, safety and fire prevention.
- Inspect and/or assist in inspection of job sites to detect hazards that may have escaped established prevention and control mechanisms and to uncover any previously undetected hazards.
- Investigate or oversee investigation of employee reports of hazards. Respond to employee safety and health suggestions.
- Assist supervisors in investigating accidents and incidents such as property damage and near-misses.

- Provide technical assistance to employees in the performance of their duties under the safety and health program.
- Use the safety director to help promote aggressive and effective safety and health programs.
- Participate in safety and health program evaluations.

FOREMEN

- Supervise and evaluate worker performance, including each worker's safety and health behavior and work methods.
- Encourage and actively support employee involvement in the safety and health program. Provide positive reinforcement and recognition to outstanding individual and group performance.
- Obtain and maintain up-to-date knowledge and skills required to detect safety and health violations and other hazards, such as improperly functioning machinery, tools, and equipment.
- Maintain good housekeeping in and around your work area.
- Investigate accidents thoroughly to determine how hazards can be eliminated or controlled.
- Hold employees accountable for their safety and health responsibilities. Actively discourage short cuts. Consistently and fairly enforce safe work procedures and safety and health rules.
- Provide continuing on-the-job training in safe work procedures and the use and maintenance of personal protective equipment.
- Make sure each employee knows what to do in case of an emergency.
- Practice what you preach. Be through and contentious in following the safe work procedures and safety and health rules that apply to the area.

EMPLOYEE RESPONSIBILITIES

- Approved hard hats must be worn at all times.
- Learn the rules. Understand them, follow them, and avoid short cuts.
- Review the safety and health educational material posted on bulletin boards and distributed to work areas. If you do not understand something, ask questions.
- Take personal responsibility for keeping yourself, your co-workers, and company equipment free from mishaps.
- Be certain that you completely understand instructions before starting work. Avoid taking short cuts through safe work procedures.
- Seek information on any hazardous chemicals you work with in order to understand their dangers and about how to protect yourself.
- If you have any doubt about safety and/or healthfulness of a task, stop and get instructions from your supervisor before continuing.

- If you have a suggestion for reducing safety and health risks, offer it. It is your responsibility to get involved.
- Know how and where medical help can be obtained.

Personal Protective Equipment

SAFETY GLASSES (Z87 Certified)

1) Includes, but not limited to: operating a grinder, hammer, saw, pressure washer, hammer drill, impact wrench, any air powered tool
2) Operating a walk-behind saw
3) Blowing out concrete joints
4) Placing hot tar joint seal
5) Concrete Plant Site
    a. Pig Man
    b. Plant Operator (when outside the plant trailer)
6) Working/Checking grade behind the Trimmers, Placers, and Autograders
7) Operating a piece of equipment with an open-air cab (Scraper, Dozer, Roller, etc.)

FACE SHIELD (Includes welding helmet)

1) Welding
2) Grinding
3) Sand Blasting
4) Cutting Steel (acetylene torch)

HARD HAT

Hard hats are to be worn at all times by all employees (Superintendents, Foremen, and Project Managers included) while on any Ideker, Inc. project. This includes any guests or visitors. If an employee does not report to work with his/her hard hat, they are to be sent home to retrieve it or be given a loaner to be returned at the end of day's shift. Mechanics should wear a hard hat whenever possible.

HEARING PROTECTION PROGRAM

The following is a guideline as to when Hearing Protection is to be used. This list does not include all instances when Hearing Protection is to be used. It is the responsibility of the Superintendent, Foreman, and/or Project Manager to determine when Hearing Protection is warranted.

*Hearing Protection is required by OSHA when noise levels exceed 80 db

EAR MUFFS (Hard Hat Mountable)

1) Operating walk-behind concrete saw (Dry or Wet)
2) Concrete Plant Site
    a. Pig Man
    b. Plant Operator (when outside the plant trailer)
3) Rock Drill (Blasting Operation)

EAR PLUGS (Disposable)

1) Operating Quickie/Hot Saw, Chain Saw
2) Sand Blasting
3) Blowing out concrete joints (behind saw crew)
4) Blowing out concrete joints (before hot tar/neoprene seal crew)
5) Operating EZ Drill or similar drill
6) Employees stabbing bars behind concrete paver
7) Checking grade behind Trimmers, Autograders, and Placers
8) All Operators are highly encouraged to wear hearing protection
9) Operating Jackhammers, Air Compressors, Chipping Guns, etc.

*Note: Any employee requesting ear plugs shall receive them in a quick and timely manner.

EYE PROTECTION

The following is a guideline as to when Eye Protection is to be used. This list does not include all instances when Eye Protection is to be used. It is the responsibility of the Superintendent, Foreman, and/or Project Manager to determine when Eye Protection is warranted.

*Note: Eye Protection is required by OSHA when there is a danger of flying debris entering the eye.

RESPIRATORY PROTECTION PROGRAM

The following is guideline as to when a Respirator must be used. This list is not all-inclusive. It shall be the responsibility of the Superintendent, Foreman, and/or Project Manager to determine if a Respirator must be used during other operations.

SUPPLIED AIR HOOD is to be worn during the following operations:

1) Sand Blasting

HALF-MASK RESPIRATOR is to be used during the following operations:

1) Concrete Sawing (Dry/Abrasive walk-behind saw)
2) Blowing out concrete joints (behind dry sawing operation)

3) Concrete Plant
   a) Cement/Flyash Pig Man
   b) Plant Operator (when outside the plant trailer, i.e. around the pigs, silos, and drums
4) Paint Shop

DUST MASKS (Nuisance Masks) are to be worn during the following operations:

1) Concrete or Rock Drilling
2) Operating Quickie/Hot Saw
3) Operating Power Broom

*Note: Management should encourage all employees operating open-air cab equipment (Scrapers, Dozers, Rollers, etc.) to wear dust masks, but it is not mandatory.

*Note: Employees working in an area where a Supplied Air Hood or a Half-Mask Respirator is required must first complete an OSHA Respirator Medical Evaluation Questionnaire supplied by Ideker, Inc. prior to employment in that area. Once the questionnaire is completed, it will be sent to a licensed medical facility for evaluation, where it will be determined if the applicant is physically capable of wearing the aforementioned respirators. If it cannot be determined by the questionnaire alone, it may be required for the potential employee to receive a Pulmonary Lung Function Physical to further evaluate the potential employee's physical capabilities. The employee must then complete a Respirator Training Course that will include fit testing of respirator, given by a competent trained employee or supervisor currently trained and Ideker certified.

**Supplied Air Hood and Half-Mask Respirator filtration cartridges should be changed every 50-60 hours of use or when breathing becomes difficult or as stated by manufacturer. Masks are to be cleaned and sanitized daily, leak tested and stored in a sealed container free from harmful UV rays and airborne dust.

***Dust Masks are to be thrown away at the end of the day or whenever it is no longer useful, whichever comes first.

Appendix A to Part 26—Guidance Concerning Good Faith Efforts

top

I. When, as a recipient, you establish a contract goal on a DOT-assisted contract, a bidder must, in order to be responsible and/or responsive, make good faith efforts to meet the goal. The bidder can meet this requirement in either of two ways. First, the bidder can meet the goal, documenting commitments for participation by **DBE** firms sufficient for this purpose. Second, even if it doesn't meet the goal, the bidder can document adequate good faith efforts. This means that the bidder must show that it took all necessary and reasonable steps to achieve a **DBE** goal or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, could reasonably be expected to obtain sufficient **DBE** participation, even if they were not fully successful.

II. In any situation in which you have established a contract goal, part 26 requires you to use the good faith efforts mechanism of this part. As a recipient, it is up to you to make a fair and reasonable judgment whether a bidder that did not meet the goal made adequate good faith efforts. It is important for you to consider the quality, quantity, and intensity of the different kinds of efforts that the bidder has made. The efforts employed by the bidder should be those that one could reasonably expect a bidder to take if the bidder were actively and aggressively trying to obtain **DBE** participation sufficient to meet the **DBE** contract goal. Mere *pro forma* efforts are not good faith efforts to meet the **DBE** contract requirements. We emphasize, however, that your determination concerning the sufficiency of the firm's good faith efforts is a judgment call: meeting quantitative formulas is not required.

III. The Department also strongly cautions you against requiring that a bidder meet a contract goal (i.e., obtain a specified amount of **DBE** participation) in order to be awarded a contract, even though the bidder makes an adequate good faith efforts showing. This rule specifically prohibits you from ignoring *bona fide* good faith efforts.

IV. The following is a list of types of actions which you should consider as part of the bidder's good faith efforts to obtain **DBE** participation. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases.

A. Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBEs who have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBEs to respond to the solicitation. The bidder must determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.

B. Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the **DBE** goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate **DBE** participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.

C. Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

D. (1) Negotiating in good faith with interested DBEs. It is the bidder's responsibility to make a portion of the work available to **DBE** subcontractors and suppliers and to select those portions of the work or material needs consistent with the available **DBE** subcontractors and suppliers, so as to facilitate **DBE** participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work.

(2) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including **DBE** subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the contract **DBE** goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Prime contractors are not, however, required to accept higher quotes from DBEs if the

price difference is excessive or unreasonable.

E. Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the contractor's efforts to meet the project goal.

F. Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or contractor.

G. Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

H. Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBEs.

V. In determining whether a bidder has made good faith efforts, you may take into account the performance of other bidders in meeting the contract. For example, when the apparent successful bidder fails to meet the contract goal, but others meet it, you may reasonably raise the question of whether, with additional reasonable efforts, the apparent successful bidder could have met the goal. If the apparent successful bidder fails to meet the goal, but meets or exceeds the average **DBE** participation obtained by other bidders, you may view this, in conjunction with other factors, as evidence of the apparent successful bidder having made good faith efforts.

Civil Rights and Equal Opportunity Department
Civil Rights and Wage Assurances

Non-discrimination in Employment. Contractor shall not discriminate against any employee or candidate for employment on the basis of an individual's race, hair texture or hair style associated with an individual's race, color, sex, religion, national origin, or ancestry, disability, sexual orientation, gender identity, age, or in any other manner prohibited by Chapter 38 of the City Code. Contractor shall not engage in any discrimination as prohibited by Chapter 3 of the City Code.

Ban the Box in Hiring and Promotion.

(a) Pursuant to Section 38-104, City Code Ordinances, Contractor shall not base a hiring or promotional decision on an applicant's criminal history or sentence related thereto, unless the employer can demonstrate that the employment-related decision was based on all information available including consideration of the frequency, recentness and severity of a criminal record and that the record was reasonably related to the duties and responsibilities of the position.

(b) Notwithstanding subsection (a), Contractor may inquire about an applicant's criminal history after it has been determined that the individual is otherwise qualified for the position, and only after the applicant has been interviewed for the position. Any such inquiry may be made of all applicants who are within the final selection pool of candidates from which a job will be filled.

(c) This provision shall not apply to positions where employers are required to exclude applicants with certain criminal convictions from employment due to local, state or federal law or regulation.

Title VI of the Civil Rights Act of 1964. Title VI of the Civil Rights Act of 1964 requires that no person in the United States shall, on the grounds of race, color, or national or origin (including limited English proficient individuals), be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance. The City of Kansas City, Missouri requires compliance with the requirements of Title VI in all of its programs and activities regardless of the funding source.
Contractor shall not discriminate on the grounds of race, color, or national or origin (including limited English proficient individuals).

Quality Services Assurance Act. If this Contract exceeds $160,000.00, Contractor certifies Contractor will pay all employees who will work on this Contract in the city limits of Kansas City, Missouri at least $15.00 per hour in compliance with the City's Quality Services Assurance Act,

Section 3-66, Code of Ordinances or City has granted Contractor an exemption pursuant to the Quality Services Assurance Act.

Anti-Discrimination Against Israel. If this Contract exceeds $100,000.00 and Contractor employs at least ten employees, pursuant to Section 34.600, RSMo., by executing this Contract, Contractor certifies it is not currently engaged in and shall not, for the duration of this contract, engage in a boycott of goods or services from the State of Israel; companies doing business in or with Israel or authorized by, licensed by, or organized under the laws of the State of Israel; or persons or entities doing business in the State of Israel.

Affirmative Action. If this Contract exceeds $300,000.00 and Contractor employs fifty (50) or more people, Contractor shall comply with City's Affirmative Action requirements in accordance with the provisions of Chapter 3 of City's Code, the rules and regulations relating to those sections, and any additions or amendments thereto; in executing any Contract subject to said provisions, Contractor warrants that it has an affirmative action program in place and will maintain the affirmative action program in place for the duration of the Contract. Contractor shall not discriminate against any employee or applicant for employment because of race, color, sex, religion, national origin or ancestry, disability, sexual orientation, gender identity or age in a manner prohibited by Chapter 3 of City's Code. Contractor shall:

(a) Execute and submit the City of Kansas City, Missouri CREO Affirmative Action Program Affidavit warranting that the Contractor has an affirmative action program in place and will maintain the affirmative action program in place for the duration of the Contract.

(b) Submit, in print or electronic format, a copy of Contractor's current certificate of compliance to the City's Civil Rights and Equal Opportunity Department (CREO) prior to receiving the first payment under the Contract, unless a copy has already been submitted to CREO at any point within the previous two (2) calendar years. If, and only if, Contractor does not possess a current certification of compliance, Contractor shall submit, in print or electronic format, a copy of its affirmative action program to CREO prior to receiving the first payment under the Contract, unless a copy has already been submitted to CREO at any point within the previous two (2) calendar years.

(c) Require any Subcontractor awarded a subcontract exceeding $300,000.00 to affirm that Subcontractor has an affirmative action program in place and will maintain the affirmative action program in place for the duration of the subcontract.

(d) Obtain from any Subcontractor awarded a subcontract exceeding $300,000.00 a copy of the Subcontractor's current certificate of compliance and tender a copy of the same, in print or

electronic format, to CREO within thirty (30) days from the date the subcontract is executed. If, and only if, Subcontractor does not possess a current certificate of compliance, Contractor shall obtain a copy of the Subcontractor's affirmative action program and tender a copy of the same, in print or electronic format, to CREO within thirty (30) days from the date the subcontract is executed.

City has the right to take action as directed by City's Civil Rights and Equal Opportunity Department to enforce this provision. If Contractor fails, refuses or neglects to comply with the provisions of Chapter 3 of City's Code, then such failure shall be deemed a total breach of this Contract and this Contract may be terminated, cancelled or suspended, in whole or in part, and Contractor may be declared ineligible for any further contracts funded by City for a period of one (1) year. This is a material term of this Contract.

Compliance with Laws. Contractor shall comply with all federal, state and local laws, ordinances and regulations applicable to the work and this Agreement. Contractor shall maintain in effect all the licenses, permissions, authorizations, consents and permits that it needs to carry out its obligations under this Agreement.

Prevailing Wage. If the Agreement exceeds $75,000.00 and any of the Services performed by Contractor includes construction, reconstruction, improvement, enlargement, alteration, painting and decorating, or major repair, that is subject to the Missouri Prevailing Wage Law (Section 290.210, RSMo – 290.340, RSMo), Contractor shall immediately notify the City prior to performing Services so the parties can execute an agreement that incorporates, the appropriate Wage Order. Contractor shall comply with all requirements of Section 290.210, RSMo – 290.340, RSMo even if Contractor fails to notify
the City.

ITEM C-100 CONTRACTOR QUALITY CONTROL PROGRAM (CQCP)

100-1 General. Quality is more than test results. Quality is the combination of proper materials, testing, workmanship, equipment, inspection, and documentation of the project. Establishing and maintaining a culture of quality is key to achieving a quality project. The Contractor shall establish, provide, and maintain an effective Contractor Quality Control Program (CQCP) that details the methods and procedures that will be taken to assure that all materials and completed construction required by this contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors. Although guidelines are established and certain minimum requirements are specified here and elsewhere in the contract technical specifications, the Contractor shall assume full responsibility for accomplishing the stated purpose.

The Contractor shall establish a CQCP that will:

a. Provide qualified personnel to develop and implement the CQCP.

b. Provide for the production of acceptable quality materials.

c. Provide sufficient information to assure that the specification requirements can be met.

d. Document the CQCP process.

The Contractor shall not begin any construction or production of materials to be incorporated into the completed work until the CQCP has been reviewed and approved by the Resident Project Representative (RPR). No partial payment will be made for materials subject to specific quality control (QC) requirements until the CQCP has been reviewed and approved.

The QC requirements contained in this section and elsewhere in the contract technical specifications are in addition to and separate from the quality assurance (QA) testing requirements. QA testing requirements are the responsibility of the RPR or Contractor as specified in the specifications.

A Quality Control (QC)/Quality Assurance (QA) workshop with the Engineer, Resident Project Representative (RPR), Contractor, subcontractors, testing laboratories, and Owner's representative must be held prior to start of construction. The QC/QA workshop will be facilitated by the Contractor. The Contractor shall coordinate with the Airport and the RPR on time and location of the QC/QA workshop. Items to be addressed, at a minimum, will include:

a. Review of the CQCP including submittals, QC Testing, Action & Suspension Limits for Production, Corrective Action Plans, Distribution of QC reports, and Control Charts.

b. Discussion of the QA program.

c. Discussion of the QC and QA Organization and authority including coordination and information exchange between QC and QA.

d. Establish regular meetings to discuss control of materials, methods and testing.

e. Establishment of the overall QC culture.

100-2 Description of program.

a. General description. The Contractor shall establish a CQCP to perform QC inspection and testing of all items of work required by the technical specifications, including those performed by subcontractors. The CQCP shall ensure conformance to applicable specifications and plans with respect to materials, off-site fabrication, workmanship, construction, finish, and functional performance. The CQCP shall be effective for control of all construction work performed under this Contract and shall specifically include

surveillance and tests required by the technical specifications, in addition to other requirements of this section and any other activities deemed necessary by the Contractor to establish an effective level of QC.

b. Contractor Quality Control Program (CQCP). The Contractor shall describe the CQCP in a written document that shall be reviewed and approved by the RPR prior to the start of any production, construction, or off-site fabrication. The written CQCP shall be submitted to the RPR for review and approval at least 10 calendar days before the CQCP Workshop. The Contractor's CQCP and QC testing laboratory must be approved in writing by the RPR prior to the Notice to Proceed (NTP).

The CQCP shall be organized to address, as a minimum, the following:

1. QC organization and resumes of key staff
2. Project progress schedule
3. Submittals schedule
4. Inspection requirements
5. QC testing plan
6. Documentation of QC activities and distribution of QC reports
7. Requirements for corrective action when QC and/or QA acceptance criteria are not met
8. Material quality and construction means and methods. Address all elements applicable to the project that affect the quality of the pavement structure including subgrade, subbase, base, and surface course. Some elements that must be addressed include, but is not limited to mix design, aggregate grading, stockpile management, mixing and transporting, placing and finishing, quality control testing and inspection, smoothness, laydown plan, equipment, and temperature management plan.

The Contractor must add any additional elements to the CQCP that is necessary to adequately control all production and/or construction processes required by this contract.

100-3 CQCP organization. The CQCP shall be implemented by the establishment of a QC organization. An organizational chart shall be developed to show all QC personnel, their authority, and how these personnel integrate with other management/production and construction functions and personnel.

The organizational chart shall identify all QC staff by name and function, and shall indicate the total staff required to implement all elements of the CQCP, including inspection and testing for each item of work. If necessary, different technicians can be used for specific inspection and testing functions for different items of work. If an outside organization or independent testing laboratory is used for implementation of all or part of the CQCP, the personnel assigned shall be subject to the qualification requirements of paragraphs 100-03a and 100-03b. The organizational chart shall indicate which personnel are Contractor employees and which are provided by an outside organization.

The QC organization shall, as a minimum, consist of the following personnel:

a. Program Administrator. The Contractor Quality Control Program Administrator (CQCPA) must be a full-time on-site employee of the Contractor, or a consultant engaged by the Contractor. The CQCPA must have a minimum of five (5) years of experience in QC pavement construction with prior QC experience on a project of comparable size and scope as the contract.

Included in the five (5) years of paving/QC experience, the CQCPA must meet at least one of the following requirements:

(1) Professional Engineer with one (1) year of airport paving experience.

(2) Engineer-in-training with two (2) years of airport paving experience.

(3) National Institute for Certification in Engineering Technologies (NICET) Civil Engineering Technology Level IV with three (3) years of airport paving experience.

(4) An individual with four (4) years of airport paving experience, with a Bachelor of Science Degree in Civil Engineering, Civil Engineering Technology or Construction.

The CQCPA must have full authority to institute any and all actions necessary for the successful implementation of the CQCP to ensure compliance with the contract plans and technical specifications. The CQCPA authority must include the ability to immediately stop production until materials and/or processes are in compliance with contract specifications. The CQCPA must report directly to a principal officer of the construction firm. The CQCPA may supervise the Quality Control Program on more than one project provided that person can be at the job site within two (2) hours after being notified of a problem.

b. QC technicians. A sufficient number of QC technicians necessary to adequately implement the CQCP must be provided. These personnel must be either Engineers, engineering technicians, or experienced craftsman with qualifications in the appropriate field equivalent to NICET Level II in Civil Engineering Technology or higher, and shall have a minimum of two (2) years of experience in their area of expertise.

The QC technicians must report directly to the CQCPA and shall perform the following functions:

(1) Inspection of all materials, construction, plant, and equipment for conformance to the technical specifications, and as required by paragraph 100-6.

(2) Performance of all QC tests as required by the technical specifications and paragraph100-8.

(3) Performance of tests for the RPR when required by the technical specifications.

Certification at an equivalent level of qualification and experience by a state or nationally recognized organization will be acceptable in lieu of NICET certification.

c. Staffing levels. The Contractor shall provide sufficient qualified QC personnel to monitor each work activity at all times. Where material is being produced in a plant for incorporation into the work, separate plant and field technicians shall be provided at each plant and field placement location. The scheduling and coordinating of all inspection and testing must match the type and pace of work activity. The CQCP shall state where different technicians will be required for different work elements.

100-4 Project progress schedule. Critical QC activities must be shown on the project schedule as required by Section 80, paragraph 80-03, *Execution and Progress*.

100-5 Submittals schedule. The Contractor shall submit a detailed listing of all submittals (for example, mix designs, material certifications) and shop drawings required by the technical specifications. The listing can be developed in a spreadsheet format and shall include as a minimum:

a. Specification item number

b. Item description

c. Description of submittal

d. Specification paragraph requiring submittal

e. Scheduled date of submittal

100-6 Inspection requirements. QC inspection functions shall be organized to provide inspections for all definable features of work, as detailed below. All inspections shall be documented by the Contractor as specified by paragraph 100-9.

Inspections shall be performed as needed to ensure continuing compliance with contract requirements until completion of the particular feature of work. Inspections shall include the following minimum requirements:

a. During plant operation for material production, QC test results and periodic inspections shall be used to ensure the quality of aggregates and other mix components, and to adjust and control mix proportioning to meet the approved mix design and other requirements of the technical specifications. All equipment used in proportioning and mixing shall be inspected to ensure its proper operating condition. The CQCP shall detail how these and other QC functions will be accomplished and used.

b. During field operations, QC test results and periodic inspections shall be used to ensure the quality of all materials and workmanship. All equipment used in placing, finishing, and compacting shall be inspected to ensure its proper operating condition and to ensure that all such operations are in conformance to the technical specifications and are within the plan dimensions, lines, grades, and tolerances specified. The CQCP shall document how these and other QC functions will be accomplished and used.

100-7 Contractor QC testing facility.

a. For projects that include Item P-401, Item P-403, and Item P-404, the Contractor shall ensure facilities, including all necessary equipment, materials, and current reference standards, are provided that meet requirements in the following paragraphs of ASTM D3666, *Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials*:

- 8.1.3 Equipment Calibration and Checks;
- 8.1.9 Equipment Calibration, Standardization, and Check Records;
- 8.1.12 Test Methods and Procedures

b. For projects that include P-501, the Contractor shall ensure facilities, including all necessary equipment, materials, and current reference standards, are provided that meet requirements in the following paragraphs of ASTM C1077, Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation:

- 7 Test Methods and Procedures
- 8 Facilities, Equipment, and Supplemental Procedures

100-8 QC testing plan. As a part of the overall CQCP, the Contractor shall implement a QC testing plan, as required by the technical specifications. The testing plan shall include the minimum tests and test frequencies required by each technical specification Item, as well as any additional QC tests that the Contractor deems necessary to adequately control production and/or construction processes.

The QC testing plan can be developed in a spreadsheet fashion and shall, as a minimum, include the following:

a. Specification item number (e.g., P-401)

b. Item description (e.g., Hot Mix Asphalt Pavements)

c. Test type (e.g., gradation, grade, asphalt content)

d. Test standard (e.g., ASTM or American Association of State Highway and Transportation Officials (AASHTO) test number, as applicable)

e. Test frequency (e.g., as required by technical specifications or minimum frequency when requirements are not stated)

f. Responsibility (e.g., plant technician)

g. Control requirements (e.g., target, permissible deviations)

The QC testing plan shall contain a statistically-based procedure of random sampling for acquiring test samples in accordance with ASTM D3665. The RPR shall be provided the opportunity to witness QC sampling and testing.

All QC test results shall be documented by the Contractor as required by paragraph 100-9.

100-9 Documentation. The Contractor shall maintain current QC records of all inspections and tests performed. These records shall include factual evidence that the required QC inspections or tests have been performed, including type and number of inspections or tests involved; results of inspections or tests; nature of defects, deviations, causes for rejection, etc.; proposed remedial action; and corrective actions taken.

These records must cover both conforming and defective or deficient features, and must include a statement that all supplies and materials incorporated in the work are in full compliance with the terms of the contract. Legible copies of these records shall be furnished to the RPR daily. The records shall cover all work placed subsequent to the previously furnished records and shall be verified and signed by the CQCPA.

Contractor QC records required for the contract shall include, but are not necessarily limited to, the following records:

a. Daily inspection reports. Each Contractor QC technician shall maintain a daily log of all inspections performed for both Contractor and subcontractor operations. These technician's daily reports shall provide factual evidence that continuous QC inspections have been performed and shall, as a minimum, include the following:

(1) Technical specification item number and description

(2) Compliance with approved submittals

(3) Proper storage of materials and equipment

(4) Proper operation of all equipment

(5) Adherence to plans and technical specifications

(6) Summary of any necessary corrective actions

(7) Safety inspection.

The daily inspection reports shall identify all QC inspections and QC tests conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed.

The daily inspection reports shall be signed by the responsible QC technician and the CQCPA. The RPR shall be provided at least one copy of each daily inspection report on the work day following the day of record. When QC inspection and test results are recorded and transmitted electronically, the results must be archived.

b. Daily test reports. The Contractor shall be responsible for establishing a system that will record all QC test results. Daily test reports shall document the following information:

(1) Technical specification item number and description

(2) Test designation

(3) Location

(4) Date of test

(5) Control requirements

(6) Test results

(7) Causes for rejection

(8) Recommended remedial actions

(9) Retests

Test results from each day's work period shall be submitted to the RPR prior to the start of the next day's work period. When required by the technical specifications, the Contractor shall maintain statistical QC charts. When QC daily test results are recorded and transmitted electronically, the results must be archived.

100-10 Corrective action requirements. The CQCP shall indicate the appropriate action to be taken when a process is deemed, or believed, to be out of control (out of tolerance) and detail what action will be taken to bring the process into control. The requirements for corrective action shall include both general requirements for operation of the CQCP as a whole, and for individual items of work contained in the technical specifications.

The CQCP shall detail how the results of QC inspections and tests will be used for determining the need for corrective action and shall contain clear rules to gauge when a process is out of control and the type of correction to be taken to regain process control.

When applicable or required by the technical specifications, the Contractor shall establish and use statistical QC charts for individual QC tests. The requirements for corrective action shall be linked to the control charts.

100-11 Inspection and/or observations by the RPR. All items of material and equipment are subject to inspection and/or observation by the RPR at the point of production, manufacture or shipment to determine if the Contractor, producer, manufacturer or shipper maintains an adequate QC system in conformance with the requirements detailed here and the applicable technical specifications and plans. In addition, all items of materials, equipment and work in place shall be subject to inspection and/or observation by the RPR at the site for the same purpose.

Inspection and/or observations by the RPR does not relieve the Contractor of performing QC inspections of either on-site or off-site Contractor's or subcontractor's work.

100-12 Noncompliance.

a. The Resident Project Representative (RPR) will provide written notice to the Contractor of any noncompliance with their CQCP. After receipt of such notice, the Contractor must take corrective action.

b. When QC activities do not comply with either the CQCP or the contract provisions or when the Contractor fails to properly operate and maintain an effective CQCP, and no effective corrective actions have been taken after notification of non-compliance, the RPR will recommend the Owner take the following actions:

(1) Order the Contractor to replace ineffective or unqualified QC personnel or subcontractors and/or

(2) Order the Contractor to stop operations until appropriate corrective actions are taken.

METHOD OF MEASUREMENT

100-13 Basis of measurement and payment. Contractor Quality Control Program (CQCP) is for the personnel, tests, facilities and documentation required to implement the CQCP. The CQCP will be paid as a lump sum with the following schedule of partial payments:

a. With first pay request, 25% with approval of CQCP and completion of the Quality Control (QC)/Quality Assurance (QA) workshop.

b. When 25% or more of the original contract is earned, an additional 25%.

c. When 50% or more of the original contract is earned, an additional 20%.

d. When 75% or more of the original contract is earned, an additional 20%

e. After final inspection and acceptance of project, the final 10%.

BASIS OF PAYMENT

100-14 Payment will be made under:

Item C-100-1	Contractor Quality Control Program (CQCP) – per lump sum

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

National Institute for Certification in Engineering Technologies (NICET)

ASTM International (ASTM)

ASTM C1077	Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D3666	Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials

END OF ITEM C-100

ITEM C-102 TEMPORARY AIR AND WATER POLLUTION, SOIL EROSION, AND SILTATION CONTROL

DESCRIPTION

102-1. This item shall consist of temporary control measures as shown on the plans or as ordered by the Resident Project Representative (RPR) during the life of a contract to control pollution of air and water, soil erosion, and siltation through the use of silt fences, berms, dikes, dams, sediment basins, fiber mats, gravel, mulches, grasses, slope drains, and other erosion control devices or methods.

Temporary erosion control shall be in accordance with the approved erosion control plan; the approved Construction Safety and Phasing Plan (CSPP) and AC 150/5370-2, *Operational Safety on Airports During Construction*. The temporary erosion control measures contained herein shall be coordinated with the permanent erosion control measures specified as part of this contract to the extent practical to assure economical, effective, and continuous erosion control throughout the construction period.

Temporary control may include work outside the construction limits such as borrow pit operations, equipment and material storage sites, waste areas, and temporary plant sites.

Temporary control measures shall be designed, installed and maintained to minimize the creation of wildlife attractants that have the potential to attract hazardous wildlife on or near public-use airports.

MATERIALS

102-2.1 Grass. Grass that will not compete with the grasses sown later for permanent cover per Item T-901shall be a quick-growing species (such as ryegrass, Italian ryegrass, or cereal grasses) suitable to the area providing a temporary cover. Selected grass species shall not create a wildlife attractant.

102-2.2 Mulches. Mulches may be pinned fiber mats or other suitable material reasonably clean and free of noxious weeds and deleterious materials per Item T-908. Mulches shall not create a wildlife attractant.

102-2.3 Fertilizer. Fertilizer shall be a standard commercial grade and shall conform to all federal and state regulations and to the standards of the Association of Official Agricultural Chemists.

102-2.4 Slope drains. Slope drains may be constructed of pipe, fiber mats, rubble, concrete, asphalt, or other materials that will adequately control erosion.

102-2.5 Silt fence. Silt fence shall consist of polymeric filaments which are formed into a stable network such that filaments retain their relative positions. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life. Silt fence shall meet the requirements of ASTM D6461.

102-2.6 Other. All other materials shall meet commercial grade standards and shall be approved by the RPR before being incorporated into the project.

CONSTRUCTION REQUIREMENTS

102-3.1 General. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.

The RPR shall be responsible for assuring compliance to the extent that construction practices, construction operations, and construction work are involved.

102-3.2 Schedule. Prior to the start of construction, the Contractor shall submit schedules in accordance with the approved Construction Safety and Phasing Plan (CSPP) and the plans for accomplishment of temporary and permanent erosion control work for clearing and grubbing; grading; construction; paving; and structures at watercourses. The Contractor shall also submit a proposed method of erosion and dust control on haul roads and borrow pits and a plan for disposal of waste materials. Work shall not be started until the erosion control schedules and methods of operation for the applicable construction have been accepted by the RPR.

102-3.3 Construction details. The Contractor will be required to incorporate all permanent erosion control features into the project at the earliest practicable time as outlined in the plans and approved CSPP. Except where future construction operations will damage slopes, the Contractor shall perform the permanent seeding and mulching and other specified slope protection work in stages, as soon as substantial areas of exposed slopes can be made available. Temporary erosion and pollution control measures will be used to correct conditions that develop during construction that were not foreseen during the design stage; that are needed prior to installation of permanent control features; or that are needed temporarily to control erosion that develops during normal construction practices, but are not associated with permanent control features on the project.

Where erosion may be a problem, schedule and perform clearing and grubbing operations so that grading operations and permanent erosion control features can follow immediately if project conditions permit. Temporary erosion control measures are required if permanent measures cannot immediately follow grading operations. The RPR shall limit the area of clearing and grubbing, excavation, borrow, and embankment operations in progress, commensurate with the Contractor's capability and progress in keeping the finish grading, mulching, seeding, and other such permanent control measures current with the accepted schedule. If seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately to the extent feasible and justified as directed by the RPR.

The Contractor shall provide immediate permanent or temporary pollution control measures to minimize contamination of adjacent streams or other watercourses, lakes, ponds, or other areas of water impoundment as directed by the RPR. If temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled or directed by the RPR, the work shall be performed by the Contractor and the cost shall be incidental to this item.

The RPR may increase or decrease the area of erodible earth material that can be exposed at any time based on an analysis of project conditions.

The erosion control features installed by the Contractor shall be maintained by the Contractor during the construction period.

Provide temporary structures whenever construction equipment must cross watercourses at frequent intervals. Pollutants such as fuels, lubricants, bitumen, raw sewage, wash water from concrete mixing operations, and other harmful materials shall not be discharged into any waterways, impoundments or into natural or manmade channels.

102-3.4 Installation, maintenance and removal of silt fence. Silt fences shall extend a minimum of 24 inches above the ground surface. Posts shall be set no more than 4 feet on center. Filter fabric shall be cut from a continuous roll to the length required minimizing joints where possible. When joints are necessary, the fabric shall be spliced at a support post with a minimum 12-inch overlap and securely sealed. A trench shall be excavated approximately 6 inches deep by 6 inches wide on the upslope side of the silt fence. The trench shall be backfilled and the soil compacted over the silt fence fabric. The Contractor shall remove and dispose of silt that accumulates during construction and prior to establishment of permanent erosion control. The fence shall be maintained in good working condition until permanent erosion control is established. Silt fence shall be removed upon approval of the RPR.

METHOD OF MEASUREMENT

102-4.1 Temporary erosion and pollution control work required will be performed as scheduled or directed by the RPR. Completed and accepted work will be measured as follows:

a. Temporary seeding and mulching will be measured by the square yard.

d. All fertilizing will not be measured and is to be considered subsidiary to the temporary seeding.

102-4.2 Control work performed for protection of construction areas outside the construction limits, such as borrow and waste areas, haul roads, equipment and material storage sites, and temporary plant sites, will not be measured and paid for directly but shall be considered as a subsidiary obligation of the Contractor.

BASIS OF PAYMENT

102-5.1 Accepted quantities of temporary water pollution, soil erosion, and siltation control work ordered by the RPR and measured as provided in paragraph 102-4.1 will be paid for under:

Item C-102-1 Temporary Seeding and Mulching - per acre

Where other directed work falls within the specifications for a work item that has a contract price, the units of work shall be measured and paid for at the contract unit price bid for the various items.

Temporary control features not covered by contract items that are ordered by the RPR will be paid for in accordance with Section 00800.01, Part 1 General Provisions, Section 90, paragraph 90-05 *Payment for Extra and Force Account Work*.

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5200-33 *Hazardous Wildlife Attractants on or Near Airports*

AC 150/5370-2 *Operational Safety on Airports During Construction*

ASTM International (ASTM)

ASTM D6461 *Standard Specification for Silt Fence Materials*

United States Department of Agriculture (USDA)

FAA/USDA Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM C-102

ITEM C-105 MOBILIZATION

105-1 Description. This item of work shall consist of, but is not limited to, work and operations necessary for the movement of personnel, equipment, material and supplies to and from the project site for work on the project except as provided in the contract as separate pay items.

105-2 Mobilization limit. Mobilization shall be limited to 10 percent of the total project cost. All mobilizations costs over 10% of the project total will not be paid.

105-3 Posted notices. Prior to commencement of construction activities, the Contractor must post the following documents in a prominent and accessible place where they may be easily viewed by all employees of the prime Contractor and by all employees of subcontractors engaged by the prime Contractor: Equal Employment Opportunity (EEO) Poster "Equal Employment Opportunity is the Law" in accordance with the Office of Federal Contract Compliance Programs Executive Order 11246, as amended; Davis Bacon Wage Poster (WH 1321) - DOL "Notice to All Employees" Poster; and Applicable Davis-Bacon Wage Rate Determination. These notices must remain posted until final acceptance of the work by the Owner.

105-4 Engineer/RPR field office. The Contractor shall provide dedicated space for the use of the field RPR and inspectors, as a field office for the duration of the project. This space shall be located conveniently near the construction and shall be separate from any space used by the Contractor. The Contractor shall furnish water, sanitary facilities, heat, air conditioning, and electricity in accordance with local building codes. Further requirements are stated in Section 00800.01, Part 1 General Provisions, Section 60, Paragraph 60-05 *Engineer's Field Office*.

METHOD OF MEASUREMENT

105-5 Basis of measurement and payment. Based upon the contract lump sum price for "Mobilization" partial payments will be allowed as follows:

a. With first pay request, 25%.

b. When 25% or more of the original contract is earned, an additional 25%.

c. When 50% or more of the original contract is earned, an additional 40%.

d. After Final Inspection, staging area clean-up and delivery of all Project Closeout materials as required by Section 00800.01, Part 1 General Provisions, Section 90, paragraph 90-11, *Contractor Final Project Documentation,* the final 10%.

BASIS OF PAYMENT

105-6 Payment will be made under:

Item C-105-1	Mobilization – per lump sum

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Office of Federal Contract Compliance Programs (OFCCP)

Executive Order 11246, as amended

EEOC-P/E-1 – Equal Employment Opportunity is the Law Poster

United States Department of Labor, Wage and Hour Division (WHD)

WH 1321 – Employee Rights under the Davis-Bacon Act Poster

END OF ITEM C-105

ITEM C-106 MAINTENANCE OF TRAFFIC

DESCRIPTION

106-1.1 Work in this section includes providing, placing and maintaining temporary construction traffic delineation including barricades and runway and taxiway closure markers. The work covered by this section consists of preparatory work, operations, temporary and portable traffic control devices, temporary airfield lighting configurations and cabling, installation of silt fence demarcation, maintenance, flagmen, escorting of vehicles, equipment, and personnel, off-hour operations, out-of-sequence operations, and all other items necessary and incidental to the safe conduct of traffic through the construction area during the life of the contract.

106-1.2 Reference Standards. All layout of these signs, markings, barricades and closure markers shall conform to the CSPP, plans, these specifications, FAA Advisory Circular AC's 150/5340-1M and 150/5370-2G. In case of conflict between the CSPP, plans, and these specifications, the CSPP shall govern.

MATERIALS

106-2.1 Barricades. Barricades required will be of the low profile type indicated in the plans. Low profile flasher barricades, runway and taxiway closure markers, and other items shall all be in first class condition and meet the requirements of the plans and FAA standards. FAA approved low profile-lighted barricades will be fixed with flashing or steady burning lights as required.

All maintenance of traffic and closure materials shall be installed in accordance with the drawings.

106-2.2 Silt Fence. All silt fence used to demarcate taxiway and runway object free areas necessary to the safe operation of aircraft on airfield pavements shall be provided and installed in accordance with Section C-102. All materials shall be installed in accordance with the drawings.

OPERATIONS

106-3.1 The Contractor shall erect all advance signing for this construction and maintain all approaches for the duration of the contract. The Contractor shall provide all materials and personnel necessary to maintain traffic through the project area throughout the contract to the satisfaction of the Engineer. The Contractor shall be responsible for maintaining all signs, barricades, lights, silt fence, and other items necessary for safe operation during all phases.

BASIS OF PAYMENT

106-4.1 All work covered by this item will be paid the contract unit price per lump sum for maintenance of traffic. This shall be full compensation for all preparation and planning, for providing all temporary and portable roadway and traffic signs, for all barricades of all types, for all lights, for maintenance of all devices, for all operations including shifts in sequence, disruptions to construction, working under or near traffic, flagmen where necessary, escorting of vehicles, equipment, and personnel, off-hour and odd-hour operations, covering/ disconnecting/ jumper/ removal of all lights and signs in the closure areas and

leading into the closure areas, black out painting of existing markings and repainting of permanent pavement markings leading into the closure areas, installation of silt fence demarcation of taxiway and runway object free areas, and other items as necessary and directed by the Engineer.

Partial payments of this item will be made on every partial payment estimate in equal amounts determined by dividing the lump sum amount bid for maintenance of traffic by the number of partial payments anticipated by the contract time. No additional payment for this item shall be made if the contract time is exceeded for any reason.

Payment will be made under:

Item C-106-1	Maintenance of Traffic - per lump sum.

END OF ITEM C-106

ITEM C-110 METHOD OF ESTIMATING PERCENTAGE OF MATERIAL WITHIN SPECIFICATION LIMITS (PWL)

110-1 General. When the specifications provide for acceptance of material based on the method of estimating percentage of material within specification limits (PWL), the PWL will be determined in accordance with this section. All test results for a lot will be analyzed statistically to determine the total estimated percent of the lot that is within specification limits. The PWL is computed using the sample average (X) and sample standard deviation (S_n) of the specified number (n) of sublots for the lot and the specification tolerance limits, L for lower and U for upper, for the particular acceptance parameter. From these values, the respective Quality index, Q_L for Lower Quality Index and/or Q_U for Upper Quality Index, is computed and the PWL for the lot for the specified n is determined from Table 1. All specification limits specified in the technical sections shall be absolute values. Test results used in the calculations shall be to the significant figure given in the test procedure.

There is some degree of uncertainty (risk) in the measurement for acceptance because only a small fraction of production material (the population) is sampled and tested. This uncertainty exists because all portions of the production material have the same probability to be randomly sampled. The Contractor's risk is the probability that material produced at the acceptable quality level is rejected or subjected to a pay adjustment. The Owner's risk is the probability that material produced at the rejectable quality level is accepted.

It is the intent of this section to inform the Contractor that, in order to consistently offset the Contractor's risk for material evaluated, production quality (using population average and population standard deviation) must be maintained at the acceptable quality specified or higher. In all cases, it is the responsibility of the Contractor to produce at quality levels that will meet the specified acceptance criteria when sampled and tested at the frequencies specified.

110-2 Method for computing PWL. The computational sequence for computing PWL is as follows:

a. Divide the lot into n sublots in accordance with the acceptance requirements of the specification.

b. Locate the random sampling position within the sublot in accordance with the requirements of the specification.

c. Make a measurement at each location, or take a test portion and make the measurement on the test portion in accordance with the testing requirements of the specification.

d. Find the sample average (X) for all sublot test values within the lot by using the following formula:

$$\mathbf{X = (x_1 + x_2 + x_3 + \ldots x_n) / n}$$

Where: X = Sample average of all sublot test values within a lot

$x_1, x_2, \ldots x_n$ = Individual sublot test values

n = Number of sublot test values

e. Find the sample standard deviation (S_n) by use of the following formula:

$$\mathbf{S_n = [(d_1^2 + d_2^2 + d_3^2 + \ldots d_n^2)/(n-1)]^{1/2}}$$

Where: S_n = Sample standard deviation of the number of sublot test values in the set

$d_1, d_2, \ldots d_n$ = Deviations of the individual sublot test values $x_1, x_2, \ldots$ from the average value X

that is: $d_1 = (x_1 - X)$, $d_2 = (x_2 - X) \ldots d_n = (x_n - X)$

n = Number of sublot test values

f. For single sided specification limits (i.e., L only), compute the Lower Quality Index Q_L by use of the following formula:

$$\mathbf{Q_L = (X - L) / S_n}$$

Where: L = specification lower tolerance limit

Estimate the percentage of material within limits (PWL) by entering Table 1 with Q_L, using the column appropriate to the total number (n) of measurements. If the value of Q_L falls between values shown on the table, use the next higher value of PWL.

g. For double-sided specification limits (i.e., L and U), compute the Quality Indexes Q_L and Q_U by use of the following formulas:

$$\mathbf{Q_L = (X - L) / S_n}$$
$$\mathbf{and}$$
$$\mathbf{Q_U = (U - X) / S_n}$$

Where: L and U = specification lower and upper tolerance limits

Estimate the percentage of material between the lower (L) and upper (U) tolerance limits (PWL) by entering Table 1 separately with Q_L and Q_U, using the column appropriate to the total number (n) of measurements, and determining the percent of material above P_L and percent of material below P_U for each tolerance limit. If the values of Q_L fall between values shown on the table, use the next higher value of P_L or P_U. Determine the PWL by use of the following formula:

$$\mathbf{PWL = (P_U + P_L) - 100}$$

Where: P_L = percent within lower specification limit

P_U = percent within upper specification limit

EXAMPLE OF PWL CALCULATION

Project: Example Project

Test Item: Item P-401, Lot A.

A. PWL Determination for Mat Density.

1. Density of four random cores taken from Lot A.

A-1 = 96.60

A-2 = 97.55

A-3 = 99.30

A-4 = 98.35

n = 4

2. Calculate average density for the lot.

$X = (x_1 + x_2 + x_3 + . . . x_n) / n$

$X = (96.60 + 97.55 + 99.30 + 98.35) / 4$

$X = 97.95\%$ density

3. Calculate the standard deviation for the lot.

$S_n = [((96.60 - 97.95)^2 + (97.55 - 97.95)^2 + (99.30 - 97.95)^2 + (98.35 - 97.95)^2)) / (4 - 1)]^{1/2}$

$S_n = [(1.82 + 0.16 + 1.82 + 0.16) / 3]^{1/2}$

$S_n = 1.15$

4. Calculate the Lower Quality Index Q_L for the lot. (L=96.3)

$Q_L = (X - L) / S_n$

$Q_L = (97.95 - 96.30) / 1.15$

$Q_L = 1.4348$

5. Determine PWL by entering Table 1 with $Q_L = 1.44$ and n= 4.

PWL = 98

B. PWL Determination for Air Voids.

1. Air Voids of four random samples taken from Lot A.

A-1 = 5.00

A-2 = 3.74

A-3 = 2.30

A-4 = 3.25

2. Calculate the average air voids for the lot.

$X = (x_1 + x_2 + x_3 . . . n) / n$

$X = (5.00 + 3.74 + 2.30 + 3.25) / 4$

$X = 3.57\%$

3. Calculate the standard deviation S_n for the lot.

$S_n = [((3.57 - 5.00)^2 + (3.57 - 3.74)^2 + (3.57 - 2.30)^2 + (3.57 - 3.25)^2) / (4 - 1)]^{1/2}$

$S_n = [(2.04 + 0.03 + 1.62 + 0.10) / 3]^{1/2}$

$S_n = 1.12$

4. Calculate the Lower Quality Index Q_L for the lot. (L= 2.0)

$Q_L = (X - L) / S_n$

$Q_L = (3.57 - 2.00) / 1.12$

$Q_L = 1.3992$

5. Determine P_L by entering Table 1 with $Q_L = 1.41$ and n = 4.

$P_L = 97$

6. Calculate the Upper Quality Index Q_U for the lot. (U= 5.0)

$Q_U = (U - X) / S_n$

$Q_U = (5.00 - 3.57) / 1.12$

$Q_U = 1.2702$

7. Determine P_U by entering Table 1 with $Q_U = 1.29$ and n = 4.

$P_U = 93$

8. Calculate Air Voids PWL

$PWL = (P_L + P_U) - 100$

$PWL = (97 + 93) - 100 = 90$

EXAMPLE OF OUTLIER CALCULATION (REFERENCE ASTM E178)

Project: Example Project

Test Item: Item P-401, Lot A.

A. Outlier Determination for Mat Density.

1. Density of four random cores taken from Lot A arranged in descending order.

A-3 = 99.30

A-4 = 98.35

A-2 = 97.55

A-1 = 96.60

2. From ASTM E178, Table 1, for n=4 an upper 5% significance level, the critical value for test criterion = 1.463.

3. Use average density, standard deviation, and test criterion value to evaluate density measurements.

a. For measurements greater than the average:

If (measurement - average)/(standard deviation) is less than test criterion, then the measurement is not considered an outlier.

For A-3, check if (99.30 - 97.95) / 1.15 is greater than 1.463.

Since 1.174 is less than 1.463, the value is not an outlier.

b. For measurements less than the average:

If (average - measurement)/(standard deviation) is less than test criterion, then the measurement is not considered an outlier.

For A-1, check if (97.95 - 96.60) / 1.15 is greater than 1.463.

Since 1.435 is less than 1.463, the value is not an outlier.

Note: In this example, a measurement would be considered an outlier if the density were:

Greater than (97.95 + 1.463 × 1.15) = 99.63%

OR

less than (97.95 - 1.463 × 1.15) = 96.27%.

Table 1. Table for Estimating Percent of Lot Within Limits (PWL)

Percent Within Limits (P_L and P_U)	Positive Values of Q (Q_L and Q_U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
99	1.1541	1.4700	1.6714	1.8008	1.8888	1.9520	1.9994	2.0362
98	1.1524	1.4400	1.6016	1.6982	1.7612	1.8053	1.8379	1.8630

Percent Within Limits (P_L and P_U)	Positive Values of Q (Q_L and Q_U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
97	1.1496	1.4100	1.5427	1.6181	1.6661	1.6993	1.7235	1.7420
96	1.1456	1.3800	1.4897	1.5497	1.5871	1.6127	1.6313	1.6454
95	1.1405	1.3500	1.4407	1.4887	1.5181	1.5381	1.5525	1.5635
94	1.1342	1.3200	1.3946	1.4329	1.4561	1.4717	1.4829	1.4914
93	1.1269	1.2900	1.3508	1.3810	1.3991	1.4112	1.4199	1.4265
92	1.1184	1.2600	1.3088	1.3323	1.3461	1.3554	1.3620	1.3670
91	1.1089	1.2300	1.2683	1.2860	1.2964	1.3032	1.3081	1.3118
90	1.0982	1.2000	1.2290	1.2419	1.2492	1.2541	1.2576	1.2602
89	1.0864	1.1700	1.1909	1.1995	1.2043	1.2075	1.2098	1.2115
88	1.0736	1.1400	1.1537	1.1587	1.1613	1.1630	1.1643	1.1653
87	1.0597	1.1100	1.1173	1.1192	1.1199	1.1204	1.1208	1.1212
86	1.0448	1.0800	1.0817	1.0808	1.0800	1.0794	1.0791	1.0789
85	1.0288	1.0500	1.0467	1.0435	1.0413	1.0399	1.0389	1.0382
84	1.0119	1.0200	1.0124	1.0071	1.0037	1.0015	1.0000	0.9990
83	0.9939	0.9900	0.9785	0.9715	0.9671	0.9643	0.9624	0.9610
82	0.9749	0.9600	0.9452	0.9367	0.9315	0.9281	0.9258	0.9241
81	0.9550	0.9300	0.9123	0.9025	0.8966	0.8928	0.8901	0.8882
80	0.9342	0.9000	0.8799	0.8690	0.8625	0.8583	0.8554	0.8533
79	0.9124	0.8700	0.8478	0.8360	0.8291	0.8245	0.8214	0.8192
78	0.8897	0.8400	0.8160	0.8036	0.7962	0.7915	0.7882	0.7858
77	0.8662	0.8100	0.7846	0.7716	0.7640	0.7590	0.7556	0.7531
76	0.8417	0.7800	0.7535	0.7401	0.7322	0.7271	0.7236	0.7211
75	0.8165	0.7500	0.7226	0.7089	0.7009	0.6958	0.6922	0.6896
74	0.7904	0.7200	0.6921	0.6781	0.6701	0.6649	0.6613	0.6587
73	0.7636	0.6900	0.6617	0.6477	0.6396	0.6344	0.6308	0.6282
72	0.7360	0.6600	0.6316	0.6176	0.6095	0.6044	0.6008	0.5982
71	0.7077	0.6300	0.6016	0.5878	0.5798	0.5747	0.5712	0.5686
70	0.6787	0.6000	0.5719	0.5582	0.5504	0.5454	0.5419	0.5394
69	0.6490	0.5700	0.5423	0.5290	0.5213	0.5164	0.5130	0.5105
68	0.6187	0.5400	0.5129	0.4999	0.4924	0.4877	0.4844	0.4820
67	0.5878	0.5100	0.4836	0.4710	0.4638	0.4592	0.4560	0.4537
66	0.5563	0.4800	0.4545	0.4424	0.4355	0.4310	0.4280	0.4257
65	0.5242	0.4500	0.4255	0.4139	0.4073	0.4030	0.4001	0.3980
64	0.4916	0.4200	0.3967	0.3856	0.3793	0.3753	0.3725	0.3705
63	0.4586	0.3900	0.3679	0.3575	0.3515	0.3477	0.3451	0.3432
62	0.4251	0.3600	0.3392	0.3295	0.3239	0.3203	0.3179	0.3161
61	0.3911	0.3300	0.3107	0.3016	0.2964	0.2931	0.2908	0.2892
60	0.3568	0.3000	0.2822	0.2738	0.2691	0.2660	0.2639	0.2624
59	0.3222	0.2700	0.2537	0.2461	0.2418	0.2391	0.2372	0.2358
58	0.2872	0.2400	0.2254	0.2186	0.2147	0.2122	0.2105	0.2093
57	0.2519	0.2100	0.1971	0.1911	0.1877	0.1855	0.1840	0.1829
56	0.2164	0.1800	0.1688	0.1636	0.1607	0.1588	0.1575	0.1566
55	0.1806	0.1500	0.1406	0.1363	0.1338	0.1322	0.1312	0.1304
54	0.1447	0.1200	0.1125	0.1090	0.1070	0.1057	0.1049	0.1042
53	0.1087	0.0900	0.0843	0.0817	0.0802	0.0793	0.0786	0.0781
52	0.0725	0.0600	0.0562	0.0544	0.0534	0.0528	0.0524	0.0521
51	0.0363	0.0300	0.0281	0.0272	0.0267	0.0264	0.0262	0.0260
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Percent Within Limits (P_L and P_U)	Negative Values of Q (Q_L and Q_U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
49	-0.0363	-0.0300	-0.0281	-0.0272	-0.0267	-0.0264	-0.0262	-0.0260
48	-0.0725	-0.0600	-0.0562	-0.0544	-0.0534	-0.0528	-0.0524	-0.0521
47	-0.1087	-0.0900	-0.0843	-0.0817	-0.0802	-0.0793	-0.0786	-0.0781
46	-0.1447	-0.1200	-0.1125	-0.1090	-0.1070	-0.1057	-0.1049	-0.1042

Percent Within Limits (P_L and P_U)	Negative Values of Q (Q_L and Q_U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
45	-0.1806	-0.1500	-0.1406	-0.1363	-0.1338	-0.1322	-0.1312	-0.1304
44	-0.2164	-0.1800	-0.1688	-0.1636	-0.1607	-0.1588	-0.1575	-0.1566
43	-0.2519	-0.2100	-0.1971	-0.1911	-0.1877	-0.1855	-0.1840	-0.1829
42	-0.2872	-0.2400	-0.2254	-0.2186	-0.2147	-0.2122	-0.2105	-0.2093
41	-0.3222	-0.2700	-0.2537	-0.2461	-0.2418	-0.2391	-0.2372	-0.2358
40	-0.3568	-0.3000	-0.2822	-0.2738	-0.2691	-0.2660	-0.2639	-0.2624
39	-0.3911	-0.3300	-0.3107	-0.3016	-0.2964	-0.2931	-0.2908	-0.2892
38	-0.4251	-0.3600	-0.3392	-0.3295	-0.3239	-0.3203	-0.3179	-0.3161
37	-0.4586	-0.3900	-0.3679	-0.3575	-0.3515	-0.3477	-0.3451	-0.3432
36	-0.4916	-0.4200	-0.3967	-0.3856	-0.3793	-0.3753	-0.3725	-0.3705
35	-0.5242	-0.4500	-0.4255	-0.4139	-0.4073	-0.4030	-0.4001	-0.3980
34	-0.5563	-0.4800	-0.4545	-0.4424	-0.4355	-0.4310	-0.4280	-0.4257
33	-0.5878	-0.5100	-0.4836	-0.4710	-0.4638	-0.4592	-0.4560	-0.4537
32	-0.6187	-0.5400	-0.5129	-0.4999	-0.4924	-0.4877	-0.4844	-0.4820
31	-0.6490	-0.5700	-0.5423	-0.5290	-0.5213	-0.5164	-0.5130	-0.5105
30	-0.6787	-0.6000	-0.5719	-0.5582	-0.5504	-0.5454	-0.5419	-0.5394
29	-0.7077	-0.6300	-0.6016	-0.5878	-0.5798	-0.5747	-0.5712	-0.5686
28	-0.7360	-0.6600	-0.6316	-0.6176	-0.6095	-0.6044	-0.6008	-0.5982
27	-0.7636	-0.6900	-0.6617	-0.6477	-0.6396	-0.6344	-0.6308	-0.6282
26	-0.7904	-0.7200	-0.6921	-0.6781	-0.6701	-0.6649	-0.6613	-0.6587
25	-0.8165	-0.7500	-0.7226	-0.7089	-0.7009	-0.6958	-0.6922	-0.6896
24	-0.8417	-0.7800	-0.7535	-0.7401	-0.7322	-0.7271	-0.7236	-0.7211
23	-0.8662	-0.8100	-0.7846	-0.7716	-0.7640	-0.7590	-0.7556	-0.7531
22	-0.8897	-0.8400	-0.8160	-0.8036	-0.7962	-0.7915	-0.7882	-0.7858
21	-0.9124	-0.8700	-0.8478	-0.8360	-0.8291	-0.8245	-0.8214	-0.8192
20	-0.9342	-0.9000	-0.8799	-0.8690	-0.8625	-0.8583	-0.8554	-0.8533
19	-0.9550	-0.9300	-0.9123	-0.9025	-0.8966	-0.8928	-0.8901	-0.8882
18	-0.9749	-0.9600	-0.9452	-0.9367	-0.9315	-0.9281	-0.9258	-0.9241
17	-0.9939	-0.9900	-0.9785	-0.9715	-0.9671	-0.9643	-0.9624	-0.9610
16	-1.0119	-1.0200	-1.0124	-1.0071	-1.0037	-1.0015	-1.0000	-0.9990
15	-1.0288	-1.0500	-1.0467	-1.0435	-1.0413	-1.0399	-1.0389	-1.0382
14	-1.0448	-1.0800	-1.0817	-1.0808	-1.0800	-1.0794	-1.0791	-1.0789
13	-1.0597	-1.1100	-1.1173	-1.1192	-1.1199	-1.1204	-1.1208	-1.1212
12	-1.0736	-1.1400	-1.1537	-1.1587	-1.1613	-1.1630	-1.1643	-1.1653
11	-1.0864	-1.1700	-1.1909	-1.1995	-1.2043	-1.2075	-1.2098	-1.2115
10	-1.0982	-1.2000	-1.2290	-1.2419	-1.2492	-1.2541	-1.2576	-1.2602
9	-1.1089	-1.2300	-1.2683	-1.2860	-1.2964	-1.3032	-1.3081	-1.3118
8	-1.1184	-1.2600	-1.3088	-1.3323	-1.3461	-1.3554	-1.3620	-1.3670
7	-1.1269	-1.2900	-1.3508	-1.3810	-1.3991	-1.4112	-1.4199	-1.4265
6	-1.1342	-1.3200	-1.3946	-1.4329	-1.4561	-1.4717	-1.4829	-1.4914
5	-1.1405	-1.3500	-1.4407	-1.4887	-1.5181	-1.5381	-1.5525	-1.5635
4	-1.1456	-1.3800	-1.4897	-1.5497	-1.5871	-1.6127	-1.6313	-1.6454
3	-1.1496	-1.4100	-1.5427	-1.6181	-1.6661	-1.6993	-1.7235	-1.7420
2	-1.1524	-1.4400	-1.6016	-1.6982	-1.7612	-1.8053	-1.8379	-1.8630
1	-1.1541	-1.4700	-1.6714	-1.8008	-1.8888	-1.9520	-1.9994	-2.0362

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM E178 Standard Practice for Dealing with Outlying Observations

END OF ITEM C-110

ITEM P-101 PREPARATION/REMOVAL OF EXISTING PAVEMENTS

DESCRIPTION

101-1 This item shall consist of preparation of existing pavement surfaces for overlay, surface treatments, removal of existing pavement, and other miscellaneous items. The work shall be accomplished in accordance with these specifications and the applicable plans.

EQUIPMENT AND MATERIALS

101-2 All equipment and materials shall be specified here and in the following paragraphs or approved by the Resident Project Representative (RPR). The equipment shall not cause damage to the pavement to remain in place.

CONSTRUCTION

101-3.1 Removal of existing pavement.

The Contractor's removal operation shall be controlled to not damage adjacent pavement structure, and base material, cables, utility ducts, pipelines, or drainage structures which are to remain under the pavement.

a. Concrete pavement removal. Full depth saw cuts shall be made perpendicular to the slab surface. The Contractor shall saw through the full depth of the slab including any dowels at the joint, removing the pavement and installing new dowels as shown on the plans and per the specifications. Where the perimeter of the removal limits is not located on the joint and there are no dowels present, the perimeter shall be saw cut the full depth of the pavement. The pavement inside the saw cut shall be removed by methods which will not cause distress in the pavement which is to remain in place. All concrete pavements shall be removed from the airport property and shall be recycled or disposed of in accordance with applicable laws and ordinances. Concrete slabs that are damaged by under breaking shall be repaired or removed and replaced as directed by the RPR.

The edge of existing concrete pavement against which new pavement abuts shall be protected from damage at all times. Spall and underbreak repair shall be in accordance with the plans or as directed by the RPR. Any underlaying material that is to remain in place, shall be recompacted and/or replaced as shown on the plans. Adjacent areas damaged during repair shall be repaired or replaced at the Contractor's expense.

b. Asphalt pavement removal. Asphalt pavement to be removed shall be cut to the full depth of the asphalt pavement around the perimeter of the area to be removed. If the asphalt removal area is to be replaced with asphalt pavement, the pavement shall be removed so the joint for each layer of pavement is offset 1 foot from the joint of the preceding layer. Asphalt pavement to have the surface removed shall be accomplished by milling within the area to be removed. All asphalt concrete material shall be removed from the airport property and shall be recycled or disposed of in accordance with applicable laws and ordinances.

c. Repair or removal of Base, Subbase, and/or Subgrade. All failed material including surface, lean concrete base course, subbase course, and subgrade shall be removed and repaired as shown on the plans or as directed by the RPR. This includes repairing existing cores and conduit trenches. Materials

and methods of construction shall comply with the applicable sections of these specifications. Any damage caused by Contractor's removal process shall be repaired at the Contractor's expense.

101-3.2 Preparation of joints and cracks prior to overlay/surface treatment. Remove all vegetation and debris from cracks to a minimum depth of 1 inch. If extensive vegetation exists, treat the specific area with a concentrated solution of a water-based herbicide approved by the RPR. Fill all cracks greater than 1/4 inch wide with a crack sealant per ASTM D6690. The crack sealant, preparation, and application shall be compatible with the surface treatment/overlay to be used. To minimize contamination of the asphalt with the crack sealant, underfill the crack sealant a minimum of 1/8 inch, not to exceed ¼ inch. Any excess joint or crack sealer shall be removed from the pavement surface.

Wider cracks (over 1-1/2 inch wide), along with soft or sunken spots, indicate that the pavement or the pavement base should be repaired or replaced as stated below.

Cracks and joints may be filled with a mixture of emulsified asphalt and aggregate. The aggregate shall consist of limestone, volcanic ash, sand, or other material that will cure to form a hard substance. The combined gradation shall be as shown in the following table.

Gradation

Sieve Size	Percent Passing
No. 4	100
No. 8	90-100
No. 16	65-90
No. 30	40-60
No. 50	25-42
No. 100	15-30
No. 200	10-20

Up to 3% cement can be added to accelerate the set time. The mixture shall not contain more than 20% natural sand without approval in writing from the RPR.

The proportions of asphalt emulsion and aggregate shall be determined in the field and may be varied to facilitate construction requirements. Normally, these proportions will be approximately one part asphalt emulsion to five parts aggregate by volume. The material shall be poured or placed into the joints or cracks and compacted to form a voidless mass. The joint or crack shall be filled to within +0 to -1/8 inches of the surface. Any material spilled outside the width of the joint shall be removed from the pavement surface prior to constructing the overlay. Where concrete overlays are to be constructed, only the excess joint material on the pavement surface and vegetation in the joints need to be removed.

101-3.3 Removal of Foreign Substances/contaminates prior to Asphalt and Concrete Overlay. Removal of foreign substances/contaminates from existing pavement that will affect the bond of the asphalt and concrete overlay shall consist of removal of rubber, fuel spills, oil, crack sealer, at least 90% of paint, and other foreign substances from the surface of the pavement. Areas that require removal are designated on the plans and as directed by the RPR in the field during construction.

Removal may be accomplished by high-pressure water blasting, cold milling, or rotary grinding. Removal methods used shall not cause major damage to the pavement, or to any structure or utility within or adjacent to the work area. Major damage is defined as changing the properties of the pavement, removal of asphalt causing the aggregate to ravel, or removing pavement over 1/8 inch (3 mm) deep. If it is deemed by the RPR that damage to the existing pavement is caused by operational error, such as

permitting the application method to dwell in one location for too long, the Contractor shall repair the damaged area without compensation and as directed by the RPR.

Removal of foreign substances shall not proceed until approved by the RPR. Water used for high-pressure water equipment shall be provided by the Contractor at the Contractor's expense. No material shall be deposited on the pavement shoulders. All wastes shall be removed from the airport property and shall be recycled or disposed of in accordance with applicable laws and ordinances.

101-3.4 Concrete spall or failed asphaltic concrete pavement repair.

a. Repair of concrete spalls in areas to be overlaid with asphalt. The Contractor shall repair all spalled concrete as shown on the plans or as directed by the RPR. The perimeter of the repair shall be saw cut a minimum of 2 inches outside the affected area and minimum 2 inches deep. The deteriorated material shall be removed to a depth where the existing material is firm or cannot be easily removed with a geologist pick. The removed area shall be filled with asphalt mixture with aggregate sized appropriately for the depth of the patch. The material shall be compacted with equipment approved by the RPR until the material is dense and no movement or marks are visible. The material shall not be placed to form compacted lifts 4 inches (compacted) in depth. This method of repair applies only to pavement to be overlaid.

When the deteriorated depth exceeds 1/3 of the PCC pavement thickness, the area shall be considered to be failed. The failed areas shall be removed as specified in paragraph 101-3.1b. All failed material including surface, base course, subbase course, and subgrade shall be removed. Materials and methods of construction shall comply with the applicable sections of these specifications.

b. Asphalt pavement repair. The Contractor shall repair all failed asphalt concrete as shown on the plans or as directed by the RPR. The failed areas shall be removed as specified in paragraph 101-3.1b. All failed material including surface, base course, subbase course, and subgrade shall be removed. Materials and methods of construction shall comply with the applicable sections of these specifications.

101-3.5 Cold milling. Milling shall be performed with a power-operated milling machine or grinder, capable of producing a uniform finished surface. The milling machine or grinder shall operate without tearing or gouging the underlaying surface. The milling machine or grinder shall be equipped with grade and slope controls, and a positive means of dust control. All millings shall be removed and disposed off Airport property. If the Contractor mills or grinds deeper or wider than the plans specify, the Contractor shall replace the material removed with new material at the Contractor’s Expense.

a. Patching. The milling machine shall be capable of cutting a vertical edge without chipping or spalling the edges of the remaining pavement and it shall have a positive method of controlling the depth of cut. The RPR shall layout the area to be milled with a straightedge in increments of 1-foot widths. The area to be milled shall cover only the failed area. Any excessive area that is milled because the Contractor doesn’t have the appropriate milling machine, or areas that are damaged because of his negligence, shall be repaired by the Contractor at the Contractor’s Expense.

b. Profiling, grade correction, or surface correction. The milling machine shall have a minimum width of 2 feet and it shall be equipped with electronic grade control devices that will cut the surface to the grade specified. The tolerances shall be maintained within +0 inch and -1/4 inch of the specified grade. The machine must cut vertical edges and have a positive method of dust control. The machine must have the ability to remove the millings or cuttings from the pavement and load them into a truck. All millings shall be removed and disposed of off the airport.

c. Clean-up. The Contractor shall sweep the milled surface daily and immediately after the milling until all residual materials are removed from the pavement surface. Prior to paving, the Contractor shall wet down the milled pavement and thoroughly sweep and/or blow the surface to remove loose residual

material. Waste materials shall be collected and removed from the pavement surface and adjacent areas by sweeping or vacuuming. Waste materials shall be removed and disposed off Airport property.

101-3.6. Preparation of asphalt pavement surfaces prior to surface treatment. Not used.

101-3.7 Maintenance. The Contractor shall perform all maintenance work necessary to keep the pavement in a satisfactory condition until the full section is complete and accepted by the RPR. The surface shall be kept clean and free from foreign material. The pavement shall be properly drained at all times. If cleaning is necessary or if the pavement becomes disturbed, any work repairs necessary shall be performed at the Contractor's expense.

101-3.8 Preparation of Joints in Rigid Pavement prior to resealing. Not used.

101-3.9 Preparation of Cracks in Flexible Pavement prior to sealing. Not used.

101-3.10 Removal of Pipe and other Buried Structures.

a. **Removal of Cleanouts/ Structures.** Where indicated on the plans or as directed by the RPR, cleanouts and/or structures shall be removed and legally disposed of off-site in a timely fashion after removal. Excavations after removal shall be backfilled with material equal or better in quality than adjacent embankment. When under paved areas must be compacted to 95% of ASTM D1557, when outside of paved areas must be compacted to 95% of ASTM D698. Contractor shall protect cleanout structures to underdrain connections intended to be reconnected for future use.

METHOD OF MEASUREMENT

101-4.1 Pavement removal. The unit of measurement for pavement removal shall be the number of square yards removed by the Contractor. Any pavement removed outside the limits of removal because the pavement was damaged by negligence on the part of the Contractor shall not be included in the measurement for payment. No direct measurement or payment shall be made for saw cutting. Saw cutting shall be incidental to pavement removal. Dowel bar installation shall be incidental to pavement removal.

101-4.2 Partial/ full depth lean concrete base course repair. The unit of measurement for lean concrete base course repair shall be the number of square yards removed or repaired by the Contractor to address deficiencies in the lean concrete base or repair existing light can base cores or existing conduit trenches. Any pavement removed outside the limits of removal because the pavement was damaged by negligence on the part of the Contractor shall not be included in the measurement for payment. No direct measurement or payment shall be made for saw cutting. Saw cutting shall be incidental to pavement removal. Item shall include the removal, preparation of the surface, and placement of repair material.

101-4.3 Joint and crack repair. The unit of measurement for joint and crack repair shall be the linear foot of joint.

101-4.4 Removal of Foreign Substances/contaminates. No separate payment will be made for removal of foreign substances/ contaminates. All costs for labor, materials, the use of all equipment, and tools required to complete the work shall be considered subsidiary to and included in the price paid for pavement removal.

101-4.5 Cold milling. The unit of measure for cold milling shall be the number of inches of milling per square yard. The location and average depth of the cold milling shall be as shown on the plans. If the initial cut does not correct the condition, the Contractor shall re-mill the area and will be paid for the total depth of milling.

101-4.6 Removal of Pipe and other Buried Structures. The unit of measurement for removal of pipe, cleanouts/ structures and other buried structures will be made at the contract unit price for each completed

and accepted item. This price shall be full compensation for all labor, equipment, tools, and incidentals necessary to complete this item in accordance with paragraph 101-3.10.

BASIS OF PAYMENT

101-5.1 Payment. Payment shall be made at contract unit price for the unit of measurement as specified above. This price shall be full compensation for furnishing all materials and for all preparation, hauling, and placing of the material and for all labor, equipment, tools, and incidentals necessary to complete this item.

Item P-101-1	15” Concrete Pavement Removal - per square yard
Item P-101-2	±17” Concrete Pavement Removal - per square yard
Item P-101-3	±4" Asphalt/ ±13" Concrete Pavement Removal - per square yard
Item P-101-4	±9" Asphalt/ 6" Base Course Removal - per square yard
Item P-101-5	2" Asphalt Cold Milling - per square yard
Item P-101-6	Crack Sealing - per linear foot
Item P-101-7	Partial Depth Lean Concrete Base Repair – per square yard
Item P-101-8	Full Depth Lean Concrete Base Repair – per square yard

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5380-6	Guidelines and Procedures for Maintenance of Airport Pavements.

ASTM International (ASTM)

ASTM D6690	Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements

END OF ITEM P-101

ITEM P-151 CLEARING AND GRUBBING

DESCRIPTION

151-1.1 This item shall consist of clearing or clearing and grubbing, including the disposal of materials, for all areas within the limits designated on the plans or as required by the Resident Project Representative (RPR).

a. Clearing shall consist of the cutting and removal of all trees, stumps, brush, logs, hedges, the removal of fences and other loose or projecting material from the designated areas. The grubbing of stumps and roots will not be required.

b. Clearing and grubbing shall consist of clearing the surface of the ground of the designated areas of all trees, stumps, down timber, logs, snags, brush, undergrowth, hedges, heavy growth of grass or weeds, fences, structures, debris, and rubbish of any nature, natural obstructions or such material which in the opinion of the RPR is unsuitable for the foundation of strips, pavements, or other required structures, including the grubbing of stumps, roots, matted roots, foundations, and the disposal from the project of all spoil materials resulting from clearing and grubbing.

CONSTRUCTION METHODS

151-2.1 General. The areas denoted on the plans to be cleared and grubbed shall be staked on the ground by the Contractor as indicated on the plans.

The removal of existing structures and utilities required to permit orderly progress of work shall be accomplished by local agencies, unless otherwise shown on the plans. Whenever a telephone pole, pipeline, conduit, sewer, roadway, or other utility is encountered and must be removed or relocated, the Contractor shall advise the RPR who will notify the proper local authority or owner to secure prompt action.

151-2.1.1 Disposal. All materials removed by clearing or by clearing and grubbing shall be disposed of outside the Airport's limits at the Contractor's responsibility, except when otherwise directed by the RPR. As far as practicable, waste concrete and masonry shall be placed on slopes of embankments or channels. When embankments are constructed of such material, this material shall be placed in accordance with requirements for formation of embankments. Any broken concrete or masonry and all other materials not considered suitable for use elsewhere, shall be disposed of by the Contractor. In no case, shall any discarded materials be left in windrows or piles adjacent to or within the airport limits. The manner and location of disposal of materials shall be subject to the approval of the RPR and shall not create an unsightly or objectionable view. When the Contractor is required to locate a disposal area outside the airport property limits, the Contractor shall obtain and file with the RPR permission in writing from the property owner for the use of private property for this purpose.

151-2.1.2 Blasting. Blasting shall not be allowed.

151-2.2 Clearing. The Contractor shall clear the staked or indicated area of all materials as indicated on the plans. Trees unavoidably falling outside the specified clearing limits must be cut up, removed, and disposed of in a satisfactory manner. To minimize damage to trees that are to be left standing, trees shall be felled toward the center of the area being cleared. The Contractor shall preserve and protect from injury all trees not to be removed. The trees, stumps, and brush shall be cut flush with the original ground surface. The grubbing of stumps and roots will not be required.

Fences shall be removed and disposed of as directed by the RPR. Fence wire shall be neatly rolled and the wire and posts stored on the airport if they are to be used again, or stored at a location designated by the RPR if the fence is to remain the property of a local owner or authority.

151-2.3 Clearing and grubbing. In areas designated to be cleared and grubbed, all stumps, roots, buried logs, brush, grass, and other unsatisfactory materials as indicated on the plans, shall be removed, except where embankments exceeding 3-1/2 feet (105 cm) in depth will be constructed outside of paved areas. For embankments constructed outside of paved areas, all unsatisfactory materials shall be removed, but sound trees, stumps, and brush can be cut off flush with the original ground and allowed to remain. Tap roots and other projections over 1-1/2 inches (38 mm) in diameter shall be grubbed out to a depth of at least 18 inches (0.5 m) below the finished subgrade or slope elevation.

Any buildings and miscellaneous structures that are shown on the plans to be removed shall be demolished or removed, and all materials shall be disposed of by removal from the site. The cost of removal is incidental to this item. The remaining or existing foundations, wells, cesspools, and like structures shall be destroyed by breaking down the materials of which the foundations, wells, cesspools, etc., are built to a depth at least 2 feet (60 cm) below the existing surrounding ground. Any broken concrete, blocks, or other objectionable material that cannot be used in backfill shall be removed and disposed of at the Contractor's expense. The holes or openings shall be backfilled with acceptable material and properly compacted.

All holes in embankment areas remaining after the grubbing operation shall have the sides of the holes flattened to facilitate filling with acceptable material and compacting as required in Item P-152. The same procedure shall be applied to all holes remaining after grubbing in areas where the depth of holes exceeds the depth of the proposed excavation.

METHOD OF MEASUREMENT

151-3.1 The quantities of clearing and grubbing as shown by the limits on the plans shall be per lump sum of land specifically cleared and grubbed.

BASIS OF PAYMENT

151-4.1 Payment shall be made at the contract unit price per lump sum for clearing and grubbing. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-151-1	Clearing and grubbing – per lump sum

END OF ITEM P-151

ITEM P-209M CRUSHED AGGREGATE BASE COURSE

DESCRIPTION

209-1.1 This item consists of a base course composed of crushed aggregate base constructed on a prepared course in accordance with these specifications and in conformity to the dimensions and typical cross-sections shown on the plans.

MATERIALS

209-2.1 Crushed aggregate base. Crushed aggregate shall consist of clean, sound, durable particles of crushed stone, or crushed gravel and shall be free from coatings of clay, silt, organic material, clay lumps or balls or other deleterious materials or coatings. The method used to produce the crushed gravel shall result in the fractured particles in the finished product as consistent and uniform as practicable. Fine aggregate portion, defined as the portion passing the No. 4 sieve shall consist of fines from the coarse aggregate crushing operation. The fine aggregate shall be produced by crushing stone, or gravel that meet the coarse aggregate requirements for wear and soundness. Aggregate base material requirements are listed in the following table.

Crushed Aggregate Base Material Requirements

Material Test	Requirement	Standard
Coarse Aggregate		
Resistance to Degradation	Loss: 45% maximum	ASTM C131
Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate	Loss after 5 cycles: 12% maximum using Sodium sulfate - or - 18% maximum using magnesium sulfate	ASTM C88
Percentage of Fractured Particles	Minimum 90% by weight of particles with at least two fractured faces and 98% with at least one fractured face[1]	ASTM D5821
Flat Particles, Elongated Particles, or Flat and Elongated Particles	10% maximum, by weight, of flat, elongated, or flat and elongated particles [2]	ASTM D4791
Clay lumps and friable particles	Less than or equal to 3 percent	ASTM C142
Fine Aggregate		
Liquid limit	Less than or equal to 25	ASTM D4318
Plasticity Index	Not more than five (5)	ASTM D4318

[1] The area of each face shall be equal to at least 75% of the smallest mid-sectional area of the piece. When two fractured faces are contiguous, the angle between the planes of fractures shall be at least 30 degrees to count as two fractured faces.

[2] A flat particle is one having a ratio of width to thickness greater than five (5); an elongated particle is one having a ratio of length to width greater than five (5).

209-2.2 Gradation requirements. The gradation of the aggregate base material shall meet the requirements of the gradation given in the following table when tested per ASTM C117 and ASTM C136.

The gradation shall be well graded from coarse to fine and shall not vary from the lower limit on one sieve to the high limit on an adjacent sieve or vice versa.

Gradation of Aggregate Base

Sieve Size	Design Range Percentage by Weight passing	Contractor's Final Gradation	Job Control Grading Band Tolerances[1] (Percent)
2 inch (50 mm)	100		0
1-1/2 inch (37.5 mm)	100		±5
1 inch (25.0 mm)	70-100		±8
3/4 inch (19.0 mm)	55-100		±8
No. 4 (4.75 mm)	10-45		±8
No. 840[2] (425 µm)	0-25		±5
No. 16 (4.75 mm)	0-10		±3
No. 40[2] (425 µm)	0-5		±3
No. 200[2] (75 µm)	0-5		±3

[1] The "Job Control Grading Band Tolerances for Contractor's Final Gradation" in the table shall be applied to "Contractor's Final Gradation" to establish a job control grading band. The full tolerance still applies if application of the tolerances results in a job control grading band outside the design range.

[2] The fraction of material passing the No 200 (75 µm) sieve shall not exceed two-thirds the fraction passing the No 40 (425 µm) sieve.

209-2.3 Sampling and Testing.

a. Aggregate base materials. The Contractor shall take samples of the aggregate base in accordance with ASTM D75 to verify initial aggregate base requirements and gradation. Material shall meet the requirements in paragraph 209-2.1. This sampling and testing will be the basis for approval of the aggregate base quality requirements.

b. Gradation requirements. The Contractor shall take at least two aggregate base samples per day in the presence of the Resident Project Representative (RPR) to check the final gradation. Sampling shall be per ASTM D75. Material shall meet the requirements in paragraph 209-2.2. The samples shall be taken from the in-place, un-compacted material at sampling points and intervals designated by the RPR.

CONSTRUCTION METHODS

209-3.1 Control strip. The first half-day of construction shall be considered the control strip. The Contractor shall demonstrate, in the presence of the RPR, that the materials, equipment, and construction processes meet the requirements of the specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. The maximum compacted thickness may be increased to a maximum of 12 inches upon the Contractor's demonstration that approved equipment and operations will uniformly compact the lift to the specified density. The RPR must witness this demonstration and approve the lift thickness prior to full production.

Control strips that do not meet specification requirements shall be reworked, re-compacted or removed and replaced at the Contractor's expense. Full operations shall not continue until the control strip has been accepted by the RPR. The Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved by the RPR.

209-3.2 Preparing underlying subgrade and/or subbase. The underlying subgrade and/or subbase shall be checked and accepted by the RPR before base course placing and spreading operations begin. Re-proof rolling of the subgrade or proof rolling of the subbase in accordance with Item P-152, at the Contractor's expense, may be required by the RPR if the Contractor fails to ensure proper drainage or protect the subgrade and/or subbase. Any ruts or soft, yielding areas due to improper drainage conditions, hauling, or any other cause, shall be corrected before the base course is placed. To ensure proper drainage, the spreading of the base shall begin along the centerline of the pavement on a crowned section or on the high side of the pavement with a one-way slope.

209-3.3 Production. The aggregate shall be uniformly blended and, when at a satisfactory moisture content per paragraph 209-3.5, the approved material may be transported directly to the placement.

209-3.4 Placement. The aggregate shall be placed and spread on the prepared underlying layer by spreader boxes or other devices as approved by the RPR, to a uniform thickness and width. The equipment shall have positive thickness controls to minimize the need for additional manipulation of the material. Dumping from vehicles that require re-handling shall not be permitted. Hauling over the uncompacted base course shall not be permitted.

The aggregate shall meet gradation and moisture requirements prior to compaction. The base course shall be constructed in lifts as established in the control strip, but not less than 4 inches nor more than 12 inches of compacted thickness.

When more than one lift is required to establish the layer thickness shown on the plans, the construction procedure described here shall apply to each lift. No lift shall be covered by subsequent lifts until tests verify that compaction requirements have been met. The Contractor shall rework, re-compact and retest any material placed which does not meet the specifications at the Contractor's expense.

209-3.5 Compaction. Immediately after completion of the spreading operations, compact each layer of the base course, as specified, with approved compaction equipment. The number, type, and weight of rollers shall be sufficient to compact the material to the required density within the same day that the aggregate is placed on the subgrade.

The field density of each compacted lift of material shall be at least 95% of the maximum density of laboratory specimens prepared from samples of the base material delivered to the jobsite. The laboratory specimens shall be compacted and tested in accordance with ASTM D1557. The moisture content of the material during placing operations shall be within ±2 percentage points of the optimum moisture content as determined by ASTM D6938. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

209-3.6 Weather limitations. Material shall not be placed unless the ambient air temperature is at least 40°F and rising. Work on base course shall not be conducted when the subgrade or subbase is wet or frozen or the base material contains frozen material.

209-3.7 Maintenance. The base course shall be maintained in a condition that will meet all specification requirements. When material has been exposed to excessive rain, snow, or freeze-thaw conditions, prior to placement of additional material, the Contractor shall verify that materials still meet all specification requirements. Equipment may be routed over completed sections of base course, provided that no damage results and the equipment is routed over the full width of the completed base course. Any damage resulting to the base course from routing equipment over the base course shall be repaired by the Contractor at the Contractor's expense.

209-3.8 Surface tolerances. After the course has been compacted, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches, reshaped and recompacted to grade until the required smoothness and accuracy are obtained and approved by the RPR. The Contractor shall perform all final smoothness and grade checks in the presence of the RPR. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense. The smoothness and accuracy requirements specified here apply only to the top layer when base course is constructed in more than one layer.

a. Smoothness. The finished surface shall not vary more than 3/8-inch when tested with a 12-foot straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously forward at half the length of the 12-foot straightedge for the full length of each line on a 50-foot grid.

b. Grade. The grade and crown shall be measured on a 50-foot grid and shall be within +0 and -1/2 inch of the specified grade.

209-3.9 Acceptance sampling and testing. Crushed aggregate base course shall be accepted for density and thickness on an area basis. Two tests shall be made for density and thickness for each 1200 square yds. Sampling locations will be determined on a random basis per ASTM D3665

a. Density. The RPR shall perform all density tests**.**

Each area shall be accepted for density when the field density is at least 95% of the maximum density of laboratory specimens compacted and tested per ASTM D1557. The in-place field density shall be determined per ASTM D1556 or ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. If the specified density is not attained, the area represented by the failed test must be reworked and/or recompacted and two additional random tests made. This procedure shall be followed until the specified density is reached. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

b. Thickness. Depth tests shall be made by test holes at least 3 inches in diameter that extend through the base. The thickness of the base course shall be within +0 and -1/2 inch of the specified thickness as determined by depth tests taken by the Contractor in the presence of the RPR for each area. Where the thickness is deficient by more than 1/2-inch, the Contractor shall correct such areas at no additional cost by scarifying to a depth of at least 3 inches, adding new material of proper gradation, and the material shall be blended and recompacted to grade. The Contractor shall replace, at his expense, base material where depth tests have been taken.

METHOD OF MEASUREMENT

209-4.1 The quantity of crushed aggregate base course will be determined by measurement of the number of square yards of material actually constructed and accepted by the RPR as complying with the plans and specifications. Base materials shall not be included in any other excavation quantities.

BASIS OF PAYMENT

209-5.1 Payment shall be made at the contract unit price per square yard for crushed aggregate base course. This price shall be full compensation for furnishing all materials, for preparing and placing these materials, and for all labor, equipment tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-209M-1	2” Min. Variable Crushed Aggregate Base Course – per square yard

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C29	Standard Test Method for Bulk Density (“Unit Weight”) and Voids in Aggregate
ASTM C88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C117	Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C142	Standard Test Method for Clay Lumps and Friable Particles in Aggregates
ASTM D75	Standard Practice for Sampling Aggregates
ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3))
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2700 kN-m/m^3))
ASTM D2167	Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method
ASTM D2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate

ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D4491	Standard Test Methods for Water Permeability of Geotextiles by Permittivity
ASTM D4643	Standard Test Method for Determination of Water Content of Soil and Rock by Microwave Oven Heating
ASTM D4751	Standard Test Methods for Determining Apparent Opening Size of a Geotextile
ASTM D4791	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM D5821	Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate
ASTM D6938	Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
ASTM D7928	Standard Test Method for Particle-Size Distribution (Gradation) of Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis

END OF ITEM P-209M

ITEM P-401 ASPHALT MIX PAVEMENT

DESCRIPTION

401-1.1 This item shall consist of pavement courses composed of mineral aggregate and asphalt binder mixed in a central mixing plant and placed on a prepared base or stabilized course in accordance with these specifications and shall conform to the lines, grades, thicknesses, and typical cross-sections shown on the plans. Each course shall be constructed to the depth, typical section, and elevation required by the plans and shall be rolled, finished, and approved before the placement of the next course.

MATERIALS

401-2.1 Aggregate. Aggregates shall consist of crushed stone, crushed gravel, crushed slag, screenings, natural sand, and mineral filler, as required. The aggregates should have no known history of detrimental pavement staining due to ferrous sulfides, such as pyrite. Coarse aggregate is the material retained on the No. 4 sieve. Fine aggregate is the material passing the No. 4 sieve.

a. Coarse aggregate. Coarse aggregate shall consist of sound, tough, durable particles, free from films of matter that would prevent thorough coating and bonding with the asphalt material and free from organic matter and other deleterious substances. Coarse aggregate material requirements are given in the table below.

Coarse Aggregate Material Requirements

Material Test	Requirement	Standard
Resistance to Degradation	Loss: 40% maximum	ASTM C131
Soundness of Aggregates by Use of Sodium Sulfate **or** Magnesium Sulfate	Loss after 5 cycles: 12% maximum using Sodium sulfate - or - 18% maximum using magnesium sulfate	ASTM C88
Clay lumps and friable particles	1.0 % maximum	ASTM C142
Percentage of Fractured Particles	For pavements designed for aircraft gross weights of 60,000 pounds or more: Minimum 75% by weight of particles with at least two fractured faces and 85% with at least one fractured face[1]	ASTM D5821
	For pavements designed for aircraft gross weights less than 60,000 pounds: Minimum 50% by weight of particles with at least two fractured faces and 65% with at least one fractured face[1]	
Flat, Elongated, or Flat and Elongated Particles	8% maximum, by weight, of flat, elongated, or flat and elongated particles at 5:1 [2]	ASTM D4791
Bulk density of slag [3]	Weigh not less than 70 pounds per cubic foot	ASTM C29.

[1] The area of each face shall be equal to at least 75% of the smallest mid-sectional area of the piece. When two fractured faces are contiguous, the angle between the planes of fractures shall be at least 30 degrees to count as two fractured faces.

[2] A flat particle is one having a ratio of width to thickness greater than five (5); an elongated particle is one having a ratio of length to width greater than five (5).

[3] Only required if slag is specified.

b. Fine aggregate. Fine aggregate shall consist of clean, sound, tough, durable, angular shaped particles produced by crushing stone, slag, or gravel and shall be free from coatings of clay, silt, or other objectionable matter. Natural (non-manufactured) sand may be used to obtain the gradation of the fine aggregate blend or to improve the workability of the mix. Fine aggregate material requirements are listed in the table below.

Fine Aggregate Material Requirements

Material Test	Requirement	Standard
Liquid limit	25 maximum	ASTM D4318
Plasticity Index	4 maximum	ASTM D4318
Soundness of Aggregates by Use of Sodium Sulfate **or** Magnesium Sulfate	Loss after 5 cycles: 10% maximum using Sodium sulfate - or - 15% maximum using magnesium sulfate	ASTM C88
Clay lumps and friable particles	1.0% maximum	ASTM C142
Sand equivalent	45 minimum	ASTM D2419
Natural Sand	0% to 15% maximum by weight of total aggregate	ASTM D1073

c. Sampling. ASTM D75 shall be used in sampling coarse and fine aggregate.

401-2.2 Mineral filler. Mineral filler (baghouse fines) may be added in addition to material naturally present in the aggregate. Mineral filler shall meet the requirements of ASTM D242.

Mineral Filler Requirements

Material Test	Requirement	Standard
Plasticity Index	4 maximum	ASTM D4318

401-2.3 Asphalt binder. Asphalt binder shall conform to ASTM D6373 Performance Grade (PG) 70-28.

Asphalt Binder PG Plus Test Requirements

Material Test	Requirement	Standard
Elastic Recovery	75% minimum	ASTM D6084[1]

[1] Follow procedure B on RTFO aged binder.

401-2.4 Anti-stripping agent. Any anti-stripping agent or additive (anti-strip) shall be heat stable and shall not change the asphalt binder grade beyond specifications. Anti-strip shall be an approved material of the Department of Transportation of the State in which the project is located.

COMPOSITION

401-3.1 Composition of mixture(s). The asphalt mix shall be composed of a mixture of aggregates, filler and anti-strip agent if required, and asphalt binder. The aggregate fractions shall be sized, handled in separate size groups, and combined in such proportions that the resulting mixture meets the grading requirements of the job mix formula (JMF).

401-3.2 Job mix formula (JMF) laboratory. The laboratory used to develop the JMF shall possess a current certificate of accreditation, listing D3666 from a national accrediting authority and all test methods required for developing the JMF; and be listed on the accrediting authority's website. A copy of

the laboratory's current accreditation and accredited test methods shall be submitted to the Resident Project Representative (RPR) prior to start of construction.

401-3.3 Job mix formula (JMF). No asphalt mixture shall be placed until an acceptable mix design has been submitted to the RPR for review and accepted in writing. The RPR's review shall not relieve the Contractor of the responsibility to select and proportion the materials to comply with this section.

When the project requires asphalt mixtures of differing aggregate gradations and/or binders, a separate JMF shall be submitted for each mix. Add anti-stripping agent to meet tensile strength requirements.

The JMF shall be prepared by an accredited laboratory that meets the requirements of paragraph 401-3.2. The asphalt mixture shall be designed using procedures contained in Asphalt Institute MS-2 Mix Design Manual, 7th Edition**.** Samples shall be prepared and compacted using a Marshall compactor in accordance with ASTM D6926.

Should a change in sources of materials be made, a new JMF must be submitted to the RPR for review and accepted in writing before the new material is used. After the initial production JMF has been approved by the RPR and a new or modified JMF is required for whatever reason, the subsequent cost of the new or modified JMF, including a new control strip when required by the RPR, will be borne by the Contractor.

The RPR may request samples at any time for testing, prior to and during production, to verify the quality of the materials and to ensure conformance with the applicable specifications.

The JMF shall be submitted in writing by the Contractor at least 30 days prior to the start of paving operations. The JMF shall be developed within the same construction season using aggregates proposed for project use.

The JMF shall be dated, and stamped or sealed by the responsible professional Engineer of the laboratory and shall include the following items as a minimum:

- Manufacturer's Certificate of Analysis (COA) for the asphalt binder used in the JMF in accordance with paragraph 401-2.3. Certificate of asphalt performance grade is with modifier already added, if used and must indicate compliance with ASTM D6373. For plant modified asphalt binder, certified test report indicating grade certification of modified asphalt binder.
- Manufacturer's Certificate of Analysis (COA) for the anti-stripping agent if used in the JMF in accordance with paragraph 401-2.4.
- Certified material test reports for the course and fine aggregate and mineral filler in accordance with paragraphs 401-2.1.
- Percent passing each sieve size for individual gradation of each aggregate cold feed and/or hot bin; percent by weight of each cold feed and/or hot bin used; and the total combined gradation in the JMF.
- Specific Gravity and absorption of each coarse and fine aggregate.
- Percent natural sand.
- Percent fractured faces.
- Percent by weight of flat particles, elongated particles, and flat and elongated particles (and criteria).
- Percent of asphalt.
- Number of blows or gyrations

- Laboratory mixing and compaction temperatures.
- Supplier-recommended field mixing and compaction temperatures.
- Plot of the combined gradation on a 0.45 power gradation curve.
- Graphical plots of air voids, voids in the mineral aggregate (VMA), and unit weight versus asphalt content. To achieve minimum VMA during production, the mix design needs to account for material breakdown during production.
- Tensile Strength Ratio (TSR).
- Type and amount of Anti-strip agent when used.
- Asphalt Pavement Analyzer (APA) results.
- Date the JMF was developed. Mix designs that are not dated or which are from a prior construction season shall not be accepted.

Table 1. Asphalt Design Criteria

Test Property	Value	Test Method
Number of blows or gyrations	75	
Air voids (%)	3.5	ASTM D3203
Percent voids in mineral aggregate (VMA), minimum	See Table 2	ASTM D6995
Tensile Strength Ratio (TSR)[1]	Not less than 80 at a saturation of 70-80%	ASTM D4867
[Asphalt Pavement Analyzer (APA)[2,3]]	Less than 10 mm @ 4000 passes	AASHTO T340 at 250 psi hose pressure at 64°C test temperature

[1] Test specimens for TSR shall be compacted at 7 ± 1.0 % air voids. In areas subject to freeze-thaw, use freeze-thaw conditioning in lieu of moisture conditioning per ASTM D4867.

[2] AASHTO T340 at 100 psi hose pressure at 64°C test temperature may be used in the interim. If this method is used the required Value shall be less than 5 mm @ 8000 passes

[3] Where APA not available , use Hamburg Wheel test (AASHTO T-324) 10mm @ 20,000 passes at 50°C.

The mineral aggregate shall be of such size that the percentage composition by weight, as determined by laboratory sieves, will conform to the gradation or gradations specified in Table 2 when tested in accordance with ASTM C136 and ASTM C117.

The gradations in Table 2 represent the limits that shall determine the suitability of aggregate for use from the sources of supply; be well graded from coarse to fine and shall not vary from the low limit on one sieve to the high limit on the adjacent sieve, or vice versa.

Table 2. Aggregate - Asphalt Pavements

Sieve Size	Percentage by Weight Passing Sieve
1 inch (25.0 mm)	-
3/4 inch (19.0 mm)	100
1/2 inch (12.5 mm)	90-100
3/8 inch (9.5 mm)	72-88
No. 4 (4.75 mm)	53-73
No. 8 (2.36 mm)	38-60
No. 16 (1.18 mm)	26-48
No. 30 (600 µm)	18-38
No. 50 (300 µm)	11-27
No. 100 (150 µm)	6-18
No. 200 (75 µm)	0-4
Minimum Voids in Mineral Aggregate (VMA)[1]	15.0
Asphalt Percent:	
Stone or gravel	5.0-7.5
Slag	6.5-9.5
Recommended Minimum Construction Lift Thickness	2 Inch

[1]To achieve minimum VMA during production, the mix design needs to account for material breakdown during production.

The aggregate gradations shown are based on aggregates of uniform specific gravity. The percentages passing the various sieves shall be corrected when aggregates of varying specific gravities are used, as indicated in the Asphalt Institute MS-2 Mix Design Manual, 7th Edition.

401-3.4 Reclaimed asphalt pavement (RAP). RAP shall not be used.

401-3.5 Control Strip. Full production shall not begin until an acceptable control strip has been constructed and accepted in writing by the RPR**.** The Contractor shall prepare and place a quantity of asphalt according to the JMF. The underlying grade or pavement structure upon which the control strip is to be constructed shall be the same as the remainder of the course represented by the control strip.

The Contractor will not be allowed to place the control strip until the Contractor quality control program (CQCP), showing conformance with the requirements of paragraph 401-5.1, has been accepted, in writing, by the RPR.

The control strip will consist of at least 250 tons or 1/2 sublot, whichever is greater. The control strip shall be placed in two lanes of the same width and depth to be used in production with a longitudinal cold joint. The cold joint must be cut back in accordance with paragraph 401-4.14 using the same procedure that will be used during production. The cold joint for the control strip will be an exposed construction joint at least four (4) hours old or when the mat has cooled to less than 160°F. The equipment used in construction of the control strip shall be the same type, configuration and weight to be used on the project.

The control strip will be considered acceptable by the RPR if the gradation, asphalt content, and VMA are within the action limits specified in paragraph 401-5.5a; and Mat density greater than or equal to 94.5%, air voids 3.5% +/- 1%, and joint density greater than or equal to 92.5%.

If the control strip is unacceptable, necessary adjustments to the JMF, plant operation, placing procedures, and/or rolling procedures shall be made and another control strip shall be placed. Unacceptable control strips shall be removed at the Contractor's expense.

The control strip will be considered one lot for payment based upon the average of a minimum of 3 samples (no sublots required for control strip). Payment will only be made for an acceptable control strip in accordance with paragraph 401-8.1 using a lot pay factor equal to 100.

CONSTRUCTION METHODS

401-4.1 Weather limitations. The asphalt shall not be placed upon a wet surface or when the surface temperature of the underlying course is less than specified in Table 4. The temperature requirements may be waived by the RPR, if requested; however, all other requirements including compaction shall be met.

Table 4. Surface Temperature Limitations of Underlying Course

Mat Thickness	Base Temperature (Minimum)	
	°F	°C
3 inches or greater	40 [1]	4
Greater than 2 inches but less than 3 inches	45	7

401-4.2 Asphalt plant. Plants used for the preparation of asphalt shall conform to the requirements of American Association of State Highway and Transportation Officials (AASHTO) M156 including the following items.

a. Inspection of plant. The RPR, or RPR's authorized representative, shall have access, at all times, to all areas of the plant for checking adequacy of equipment; inspecting operation of the plant: verifying weights, proportions, and material properties; and checking the temperatures maintained in the preparation of the mixtures.

b. Storage bins and surge bins. The asphalt mixture stored in storage and/or surge bins shall meet the same requirements as asphalt mixture loaded directly into trucks. Asphalt mixture shall not be stored in storage and/or surge bins for a period greater than twelve (12) hours. If the RPR determines there is an excessive heat loss, segregation, or oxidation of the asphalt mixture due to temporary storage, temporary storage shall not be allowed.

401-4.3 Aggregate stockpile management. Aggregate stockpiles shall be constructed in a manner that prevents segregation and intermixing of deleterious materials. Aggregates from different sources shall be stockpiled, weighed and batched separately at the asphalt batch plant. Aggregates that have become segregated or mixed with earth or foreign material shall not be used.

A continuous supply of materials shall be provided to the work to ensure continuous placement.

401-4.4 Hauling equipment. Trucks used for hauling asphalt shall have tight, clean, and smooth metal beds. To prevent the asphalt from sticking to the truck beds, the truck beds shall be lightly coated with a minimum amount of paraffin oil, lime solution, or other material approved by the RPR. Petroleum products shall not be used for coating truck beds. Each truck shall have a suitable cover to protect the

mixture from adverse weather. When necessary, to ensure that the mixture will be delivered to the site at the specified temperature, truck beds shall be insulated or heated and covers shall be securely fastened.

401-4.4.1 Material transfer vehicle (MTV). Material transfer vehicles used to transfer the material from the hauling equipment to the paver, shall use a self-propelled, material transfer vehicle with a swing conveyor that can deliver material to the paver without making contact with the paver. The MTV shall be able to move back and forth between the hauling equipment and the paver providing material transfer to the paver, while allowing the paver to operate at a constant speed. The Material Transfer Vehicle will have remixing and storage capability to prevent physical and thermal segregation.

401-4.5 Asphalt pavers. Asphalt pavers shall be self-propelled with an activated heated screed, capable of spreading and finishing courses of asphalt that will meet the specified thickness, smoothness, and grade. The paver shall have sufficient power to propel itself and the hauling equipment without adversely affecting the finished surface. The asphalt paver shall be equipped with a control system capable of automatically maintaining the specified screed grade and elevation.

If the spreading and finishing equipment in use leaves tracks or indented areas, or produces other blemishes in the pavement that are not satisfactorily corrected by the scheduled operations, the use of such equipment shall be discontinued.

The paver shall be capable of paving to a minimum width specified in paragraph 401-4.12.

401-4.6 Rollers. The number, type, and weight of rollers shall be sufficient to compact the asphalt to the required density while it is still in a workable condition without crushing of the aggregate, depressions or other damage to the pavement surface. Rollers shall be in good condition, clean, and capable of operating at slow speeds to avoid displacement of the asphalt. All rollers shall be specifically designed and suitable for compacting asphalt concrete and shall be properly used. Rollers that impair the stability of any layer of a pavement structure or underlying soils shall not be used.

401-4.7 Density device. The Contractor shall have on site a density gauge during all paving operations in order to assist in the determination of the optimum rolling pattern, type of roller and frequencies, as well as to monitor the effect of the rolling operations during production paving. The Contractor shall supply a qualified technician during all paving operations to calibrate the gauge and obtain accurate density readings for all new asphalt. These densities shall be supplied to the RPR upon request at any time during construction. No separate payment will be made for supplying the density gauge and technician.

401-4.8 Preparation of asphalt binder. The asphalt binder shall be heated in a manner that will avoid local overheating and provide a continuous supply of the asphalt binder to the mixer at a uniform temperature. The temperature of unmodified asphalt binder delivered to the mixer shall be sufficient to provide a suitable viscosity for adequate coating of the aggregate particles, but shall not exceed 325°F when added to the aggregate. The temperature of modified asphalt binder shall be no more than 350°F when added to the aggregate.

401-4.9 Preparation of mineral aggregate. The aggregate for the asphalt shall be heated and dried. The maximum temperature and rate of heating shall be such that no damage occurs to the aggregates. The temperature of the aggregate and mineral filler shall not exceed 350°F when the asphalt binder is added. Particular care shall be taken that aggregates high in calcium or magnesium content are not damaged by overheating. The temperature shall not be lower than is required to obtain complete coating and uniform distribution on the aggregate particles and to provide a mixture of satisfactory workability.

401-4.10 Preparation of Asphalt mixture. The aggregates and the asphalt binder shall be weighed or metered and mixed in the amount specified by the JMF. The combined materials shall be mixed until the aggregate obtains a uniform coating of asphalt binder and is thoroughly distributed throughout the mixture. Wet mixing time shall be the shortest time that will produce a satisfactory mixture, but not less than 25 seconds for batch plants. The wet mixing time for all plants shall be established by the Contractor,

based on the procedure for determining the percentage of coated particles described in ASTM D2489, for each individual plant and for each type of aggregate used. The wet mixing time will be set to achieve 95% of coated particles. For continuous mix plants, the minimum mixing time shall be determined by dividing the weight of its contents at operating level by the weight of the mixture delivered per second by the mixer. The moisture content of all asphalt upon discharge shall not exceed 0.5%.

401-4.11 Application of Prime and Tack Coat. Immediately before placing the asphalt mixture, the underlying course shall be cleaned of all dust and debris.

A tack coat shall be applied in accordance with Item P-603 to all vertical and horizontal asphalt and concrete surfaces prior to placement of the first and each subsequent lift of asphalt mixture.

401-4.12 Laydown plan, transporting, placing, and finishing. Prior to the placement of the asphalt, the Contractor shall prepare a laydown plan with the sequence of paving lanes and width to minimize the number of cold joints; the location of any temporary ramps; laydown temperature; and estimated time of completion for each portion of the work (milling, paving, rolling, cooling, etc.). The laydown plan and any modifications shall be approved by the RPR.

Deliveries shall be scheduled so that placing and compacting of asphalt is uniform with minimum stopping and starting of the paver. Hauling over freshly placed material shall not be permitted until the material has been compacted, as specified, and allowed to cool to approximately ambient temperature. The Contractor, at their expense, shall be responsible for repair of any damage to the pavement caused by hauling operations.

Contractor shall survey each lift of asphalt surface course and certify to RPR that every lot of each lift meets the grade tolerances of paragraph 401-6.2d before the next lift can be placed.

Edges of existing asphalt pavement abutting the new work shall be saw cut and the cut off material and laitance removed. Apply a tack coat in accordance with P-603 before new asphalt material is placed against it.

The speed of the paver shall be regulated to eliminate pulling and tearing of the asphalt mat. Placement of the asphalt mix shall begin along the centerline of a crowned section or on the high side of areas with a one way slope unless shown otherwise on the laydown plan as accepted by the RPR. The asphalt mix shall be placed in consecutive adjacent lanes having a minimum width of 10 feet except where edge lanes require less width to complete the area. Additional screed sections attached to widen the paver to meet the minimum lane width requirements must include additional auger sections to move the asphalt mixture uniformly along the screed extension.

The longitudinal joint in one course shall offset the longitudinal joint in the course immediately below by at least one foot; however, the joint in the surface top course shall be at the centerline of crowned pavements. Transverse joints in one course shall be offset by at least 10 feet from transverse joints in the previous course. Transverse joints in adjacent lanes shall be offset a minimum of 10 feet. On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the asphalt may be spread and luted by hand tools.

The RPR may at any time, reject any batch of asphalt, on the truck or placed in the mat, which is rendered unfit for use due to contamination, segregation, incomplete coating of aggregate, or overheated asphalt mixture. Such rejection may be based on only visual inspection or temperature measurements. In the event of such rejection, the Contractor may take a representative sample of the rejected material in the presence of the RPR, and if it can be demonstrated in the laboratory, in the presence of the RPR, that such material was erroneously rejected, payment will be made for the material at the contract unit price.

Areas of segregation in the surface course, as determined by the RPR, shall be removed and replaced at the Contractor's expense. The area shall be removed by saw cutting and milling a minimum of the construction lift thickness as specified in paragraph 401-3.3, Table 2 for the approved mix design. The

area to be removed and replaced shall be a minimum width of the paver and a minimum of 10 feet (3 m) long.

401-4.13 Compaction of asphalt mixture. After placing, the asphalt mixture shall be thoroughly and uniformly compacted by self-propelled rollers. The surface shall be compacted as soon as possible when the asphalt has attained sufficient stability so that the rolling does not cause undue displacement, cracking or shoving. The sequence of rolling operations and the type of rollers used shall be at the discretion of the Contractor. The speed of the roller shall, at all times, be sufficiently slow to avoid displacement of the hot mixture and be effective in compaction. Any surface defects and/or displacement occurring as a result of the roller, or from any other cause, shall be corrected at the Contractor's expense.

Sufficient rollers shall be furnished to handle the output of the plant. Rolling shall continue until the surface is of uniform texture, true to grade and cross-section, and the required field density is obtained. To prevent adhesion of the asphalt to the roller, the wheels shall be equipped with a scraper and kept moistened with water as necessary.

In areas not accessible to the roller, the mixture shall be thoroughly compacted with approved power tampers.

Any asphalt that becomes loose and broken, mixed with dirt, contains check-cracking, or in any way defective shall be removed and replaced with fresh hot mixture and immediately compacted to conform to the surrounding area. This work shall be done at the Contractor's expense. Skin patching shall not be allowed.

401-4.14 Joints. The formation of all joints shall be made to ensure a continuous bond between the courses and obtain the required density. All joints shall have the same texture as other sections of the course and meet the requirements for smoothness and grade.

The roller shall not pass over the unprotected end of the freshly laid asphalt except when necessary to form a transverse joint. When necessary to form a transverse joint, it shall be made by means of placing a bulkhead or by tapering the course. The tapered edge shall be cut back to its full depth and width on a straight line to expose a vertical face prior to placing the adjacent lane. In both methods, all contact surfaces shall be coated with an asphalt tack coat before placing any fresh asphalt against the joint.

Longitudinal joints which have been left exposed for more than four (4) hours; the surface temperature has cooled to less than 175°F; or are irregular, damaged, uncompacted or otherwise defective shall be cut back with a cutting wheel or pavement saw a maximum of 3 inches to expose a clean, sound, uniform vertical surface for the full depth of the course. All cutback material and any laitance produced from cutting joints shall be removed from the project. Asphalt tack coat in accordance with P-603 shall be applied to the clean, dry joint prior to placing any additional fresh asphalt against the joint. The cost of this work shall be considered incidental to the cost of the asphalt.

401-4.15 Saw-cut grooving. Saw-cut grooving is not required.

401-4.16 Diamond grinding. Diamond grinding shall be completed prior to pavement grooving. Diamond grinding shall be accomplished by sawing with saw blades impregnated with industrial diamond abrasive.

Diamond grinding shall be performed with a machine designed specifically for diamond grinding capable of cutting a path at least 3 feet wide. The saw blades shall be 1/8-inch wide with a sufficient number of blades to create grooves between 0.090 and 0.130 inches wide; and peaks and ridges approximately 1/32 inch higher than the bottom of the grinding cut. The actual number of blades will be determined by the Contractor and depend on the hardness of the aggregate. Equipment or grinding procedures that cause ravels, aggregate fractures, spalls or disturbance to the pavement will not be permitted. Contractor shall demonstrate to the RPR that the grinding equipment will produce satisfactory results prior to making corrections to surfaces. Grinding will be tapered in all directions to provide smooth transitions to areas

not requiring grinding. The slurry resulting from the grinding operation shall be continuously removed and the pavement left in a clean condition. The Contractor shall apply a surface treatment per P-608 to all areas that have been subject to grinding.

401-4.17 Nighttime paving requirements. The Contractor shall provide adequate lighting during any nighttime construction. A lighting plan shall be submitted by the Contractor and approved by the RPR prior to the start of any nighttime work. All work shall be in accordance with the approved CSPP and lighting plan.

CONTRACTOR QUALITY CONTROL (CQC)

401-5.1 General. The Contractor shall develop a Contractor Quality Control Program (CQCP) in accordance with Item C-100. No partial payment will be made for materials without an approved CQCP.

401-5.2 Contractor quality control (QC) facilities. The Contractor shall provide or contract for testing facilities in accordance with Item C-100. The RPR shall be permitted unrestricted access to inspect the Contractor's QC facilities and witness QC activities. The RPR will advise the Contractor in writing of any noted deficiencies concerning the QC facility, equipment, supplies, or testing personnel and procedures. When the deficiencies are serious enough to be adversely affecting the test results, the incorporation of the materials into the work shall be suspended immediately and will not be permitted to resume until the deficiencies are satisfactorily corrected.

401-5.3 Contractor QC testing. The Contractor shall perform all QC tests necessary to control the production and construction processes applicable to these specifications and as set forth in the approved CQCP. The testing program shall include, but not necessarily be limited to, tests for the control of asphalt content, aggregate gradation, temperatures, aggregate moisture, field compaction, and surface smoothness. A QC Testing Plan shall be developed as part of the CQCP.

a. Asphalt content. A minimum of two tests shall be performed per day in accordance with ASTM D6307 or ASTM D2172 for determination of asphalt content. When using ASTM D6307, the correction factor shall be determined as part of the first test performed at the beginning of plant production; and as part of every tenth test performed thereafter. The asphalt content for the day will be determined by averaging the test results.

b. Gradation. Aggregate gradations shall be determined a minimum of twice per day from mechanical analysis of extracted aggregate in accordance with ASTM D5444, ASTM C136, and ASTM C117.

c. Moisture content of aggregate. The moisture content of aggregate used for production shall be determined a minimum of once per day in accordance with ASTM C566.

d. Moisture content of asphalt. The moisture content shall be determined once per day in accordance with AASHTO T329 or ASTM D1461.

e. Temperatures. Temperatures shall be checked, at least four times per day, at necessary locations to determine the temperatures of the dryer, the asphalt binder in the storage tank, the asphalt at the plant, and the asphalt at the job site.

f. In-place density monitoring. The Contractor shall conduct any necessary testing to ensure that the specified density is being achieved. A nuclear gauge may be used to monitor the pavement density in accordance with ASTM D2950.

g. Smoothness for Contractor Quality Control.

The Contractor shall perform smoothness testing in transverse and longitudinal directions daily to verify that the construction processes are producing pavement with variances less than ¼ inch in 12 feet, identifying areas that may pond water which could lead to hydroplaning of aircraft. If the smoothness criteria is not met, appropriate changes and corrections to the construction process shall be made by the Contractor before construction continues

The Contractor may use a 12-foot "straightedge, a rolling inclinometer meeting the requirements of ASTM E2133 or rolling external reference device that can simulate a 12-foot straightedge approved by the RPR. Straight-edge testing shall start with one-half the length of the straightedge at the edge of pavement section being tested and then moved ahead one-half the length of the straightedge for each successive measurement. Testing shall be continuous across all joints. The surface irregularity shall be determined by placing the freestanding (unleveled) straightedge on the pavement surface and allowing it to rest upon the two highest spots covered by its length, and measuring the maximum gap between the straightedge and the pavement surface in the area between the two high points. If the rolling inclinometer or external reference device is used, the data may be evaluated using either the FAA profile program, ProFAA, or FHWA ProVal, using the 12-foot straightedge simulation function.

Smoothness readings shall not be made across grade changes or cross slope transitions. The transition between new and existing pavement shall be evaluated separately for conformance with the plans.

(1) Transverse measurements. Transverse measurements shall be taken for each day's production placed. Transverse measurements shall be taken perpendicular to the pavement centerline each 50 feet (15 m) or more often as determined by the RPR. The joint between lanes shall be tested separately to facilitate smoothness between lanes.

(2) Longitudinal measurements. Longitudinal measurements shall be taken for each day's production placed. Longitudinal tests shall be parallel to the centerline of paving; at the center of paving lanes when widths of paving lanes are less than 20 feet (6 m); and at the third points of paving lanes when widths of paving lanes are 20 ft (6 m) or greater. When placement abuts previously placed material the first measurement shall start with one half the length of the straight edge on the previously placed material.

Deviations on the final surface course in either the transverse or longitudinal direction that will trap water greater than 1/4 inch shall be corrected with diamond grinding per paragraph 401-4.16 or by removing and replacing the surface course to full depth. Grinding shall be tapered in all directions to provide smooth transitions to areas not requiring grinding. All areas in which diamond grinding has been performed shall be subject to the final pavement thickness tolerances specified in paragraph 401-6.1d(3). Areas that have been ground shall be sealed with a surface treatment in accordance with Item P-608. To avoid the surface treatment creating any conflict with runway or taxiway markings, it may be necessary to seal a larger area.

Control charts shall be kept to show area of each day's placement and the percentage of corrective grinding required. Corrections to production and placement shall be initiated when corrective grinding is required. If the Contractor's machines and/or methods produce significant areas that need corrective actions in excess of 10 percent of a day's production, production shall be stopped until corrective measures are implemented by the Contractor.

h. Grade. Grade shall be evaluated daily to allow adjustments to paving operations when grade measurements do not meet specifications. As a minimum, grade shall be evaluated prior to and after the placement of the first lift and after placement of the surface lift.

Measurements will be taken at appropriate gradelines (as a minimum at center and edges of paving lane) and longitudinal spacing as shown on cross-sections and plans. The final surface of the pavement

will not vary from the gradeline elevations and cross-sections shown on the plans by more than 1/2 inch vertically and 0.1 feet laterally. The documentation will be provided by the Contractor to the RPR within 24 hours.

Areas with humps or depressions that exceed grade or smoothness criteria and that retain water on the surface must be ground off provided the course thickness after grinding is not more than 1/2 inch less than the thickness specified on the plans. Grinding shall be in accordance with paragraph 401-4.16.

The Contractor shall repair low areas or areas that cannot be corrected by grinding by removal of deficient areas to the depth of the final course plus ½ inch and replacing with new material. Skin patching is not allowed.

401-5.4 Sampling. When directed by the RPR, the Contractor shall sample and test any material that appears inconsistent with similar material being sampled, unless such material is voluntarily removed and replaced or deficiencies corrected by the Contractor. All sampling shall be in accordance with standard procedures specified.

401-5.5 Control charts. The Contractor shall maintain linear control charts for both individual measurements and range (i.e. difference between highest and lowest measurements) for aggregate gradation, asphalt content, and VMA. The VMA for each day will be calculated and monitored by the QC laboratory.

Control charts shall be posted in a location satisfactory to the RPR and kept current. As a minimum, the control charts shall identify the project number, the contract item number, the test number, each test parameter, the Action and Suspension Limits applicable to each test parameter, and the Contractor's test results. The Contractor shall use the control charts as part of a process control system for identifying potential problems and assignable causes before they occur. If the Contractor's projected data during production indicates a problem and the Contractor is not taking satisfactory corrective action, the RPR may suspend production or acceptance of the material.

a. Individual measurements. Control charts for individual measurements shall be established to maintain process control within tolerance for aggregate gradation, asphalt content, and VMA. The control charts shall use the job mix formula target values as indicators of central tendency for the following test parameters with associated Action and Suspension Limits:

Control Chart Limits for Individual Measurements

Sieve	Action Limit	Suspension Limit
3/4 inch	±6%	±9%
1/2 inch	±6%	±9%
3/8 inch	±6%	±9%
No. 4	±6%	±9%
No. 16	±5%	±7.5%
No. 50	±3%	±4.5%
No. 200	±2%	±3%
Asphalt Content	±0.45%	±0.70%
Minimum VMA	-0.5%	-1.0%

b. Range. Control charts shall be established to control gradation process variability. The range shall be plotted as the difference between the two test results for each control parameter. The Suspension Limits specified below are based on a sample size of n = 2. Should the Contractor elect to perform more than two tests per lot, the Suspension Limits shall be adjusted by multiplying the Suspension Limit by 1.18 for n = 3 and by 1.27 for n = 4.

Control Chart Limits Based on Range

Sieve	Suspension Limit
1/2 inch	11%
3/8 inch	11%
No. 4	11%
No. 16	9%
No. 50	6%
No. 200	3.5%
Asphalt Content	0.8%

c. Corrective Action. The CQCP shall indicate that appropriate action shall be taken when the process is believed to be out of tolerance. The Plan shall contain rules to gauge when a process is out of control and detail what action will be taken to bring the process into control. As a minimum, a process shall be deemed out of control and production stopped and corrective action taken, if:

(1) One point falls outside the Suspension Limit line for individual measurements or range; or

(2) Two points in a row fall outside the Action Limit line for individual measurements.

401-5.6 QC reports. The Contractor shall maintain records and shall submit reports of QC activities daily, in accordance with Item C-100.

MATERIAL ACCEPTANCE

401-6.1 Acceptance sampling and testing. Unless otherwise specified, all acceptance sampling and testing necessary to determine conformance with the requirements specified in this section will be performed by the RPR at no cost to the Contractor except that coring as required in this section shall be completed and paid for by the Contractor.

a. Quality assurance (QA) testing laboratory. The QA testing laboratory performing these acceptance tests will be accredited in accordance with ASTM D3666. The QA laboratory accreditation will be current and listed on the accrediting authority's website. All test methods required for acceptance sampling and testing will be listed on the lab accreditation.

b. Lot size. A standard lot will be equal to one day's production divided into approximately equal sublots of between 400 to 600 tons. When only one or two sublots are produced in a day's production, the sublots will be combined with the production lot from the previous or next day.

Where more than one plant is simultaneously producing asphalt for the job, the lot sizes will apply separately for each plant.

c. Asphalt air voids. Plant-produced asphalt will be tested for air voids on a sublot basis.

(1) Sampling. Material from each sublot shall be sampled in accordance with ASTM D3665. Samples shall be taken from material deposited into trucks at the plant or at the job site in accordance

with ASTM D979. The sample of asphalt may be put in a covered metal tin and placed in an oven for not less than 30 minutes nor more than 60 minutes to maintain the material at or above the compaction temperature as specified in the JMF.

(2) Testing. Air voids will be determined for each sublot in accordance with ASTM D3203 for a set of three compacted specimens prepared in accordance with ASTM D6926.

d. In-place asphalt mat and joint density. Each sublot will be tested for in-place mat and joint density as a percentage of the theoretical maximum density (TMD).

(1) Sampling. The Contractor will cut minimum 5 inch diameter samples in accordance with ASTM D5361. The Contractor shall furnish all tools, labor, and materials for cleaning, and filling the cored pavement. Laitance produced by the coring operation shall be removed immediately after coring, and core holes shall be filled within one day after sampling in a manner acceptable to the RPR.

(2) Bond. Each lift of asphalt shall be bonded to the underlying layer. If cores reveal that the surface is not bonded, additional cores shall be taken as directed by the RPR to determine the extent of unbonded areas. Unbonded areas shall be removed by milling and replaced at no additional cost as directed by the RPR.

(3) Thickness. Thickness of each lift of surface course will be evaluated by the RPR for compliance to the requirements shown on the plans after any necessary corrections for grade. Measurements of thickness will be made using the cores extracted for each sublot for density measurement. The maximum allowable deficiency at any point will not be more than 1/4 inch (6 mm) less than the thickness indicated for the lift. Average thickness of lift, or combined lifts, will not be less than the indicated thickness. Where the thickness tolerances are not met, the lot or sublot shall be corrected by the Contractor at his expense by removing the deficient area and replacing with new pavement. The Contractor, at his expense, may take additional cores as approved by the RPR to circumscribe the deficient area.

(4) Mat density. One core shall be taken from each sublot. Core locations will be determined by the RPR in accordance with ASTM D3665. Cores for mat density shall not be taken closer than one foot (30 cm) from a transverse or longitudinal joint. The bulk specific gravity of each cored sample will be determined in accordance with ASTM D2726. The percent compaction (density) of each sample will be determined by dividing the bulk specific gravity of each sublot sample by the TMD for that sublot.

(5) Joint density. One core centered over the longitudinal joint shall be taken for each sublot that has a longitudinal joint. Core locations will be determined by the RPR in accordance with ASTM D3665. The bulk specific gravity of each core sample will be determined in accordance with ASTM D2726. The percent compaction (density) of each sample will be determined by dividing the bulk specific gravity of each joint density sample by the average TMD for the lot. The TMD used to determine the joint density at joints formed between lots will be the lower of the average TMD values from the adjacent lots.

401-6.2 Acceptance criteria.

a. General. Acceptance will be based on the implementation of the Contractor Quality Control Program (CQCP) and the following characteristics of the asphalt and completed pavements: air voids, mat density, joint density, and grade.

b. Air Voids and Mat density. Acceptance of each lot of plant produced material for mat density and air voids will be based on the percentage of material within specification limits (PWL). If the PWL of the lot equals or exceeds 90%, the lot will be acceptable. Acceptance and payment will be determined in accordance with paragraph 401-8.1.

c. Joint density. Acceptance of each lot of plant produced asphalt for joint density will be based on the PWL. If the PWL of the lot is equal to or exceeds 90%, the lot will be considered acceptable. If the PWL is less than 90%, the Contractor shall evaluate the reason and act accordingly. If the PWL is less

than 80%, the Contractor shall cease operations and until the reason for poor compaction has been determined. If the PWL is less than 71%, the pay factor for the lot used to complete the joint will be reduced by five (5) percentage points. This lot pay factor reduction will be incorporated and evaluated in accordance with paragraph 401-8.1.

d. Grade. The final finished surface of the pavement shall be surveyed to verify that the grade elevations and cross-sections shown on the plans do not deviate more than 1/2 inch vertically or 0.1 feet laterally.

Cross-sections of the pavement shall be taken at a minimum 50-foot longitudinal spacing, at all longitudinal grade breaks, and at start and end of each lane placed. Minimum cross-section grade points shall include grade at centerline, and edge of taxiway pavement.

The survey and documentation shall be stamped and signed by a licensed surveyor. Payment for sublots that do not meet grade for over 25% of the sublot shall not be more than 95%.

e. Profilograph roughness for QA Acceptance. Not used**.**

401-6.3 Percentage of material within specification limits (PWL). The PWL will be determined in accordance with procedures specified in Item C-110. The specification tolerance limits (L) for lower and (U) for upper are contained in Table 5.

Table 5. Acceptance Limits for Air Voids and Density

Test Property	Pavements Specification Tolerance Limits	
	L	**U**
Air Voids Total Mix (%)	2.0	5.0
Surface Course Mat Density (%)	92.8	-
Base Course Mat Density (%)	92.0	-
Joint density (%)	90.5	--

a. Outliers. All individual tests for mat density and air voids will be checked for outliers (test criterion) in accordance with ASTM E178, at a significance level of 5%. Outliers will be discarded, and the PWL will be determined using the remaining test values. The criteria in Table 5 is based on production processes which have a variability with the following standard deviations: Surface Course Mat Density (%), 1.30; Base Course Mat Density (%), 1.55; Joint Density (%), 1.55.

The Contractor should note that (1) 90 PWL is achieved when consistently producing a surface course with an average mat density of at least 94.5% with 1.30% or less variability, (2) 90 PWL is achieved when consistently producing a base course with an average mat density of at least 94.0% with 1.55% or less variability, and (3) 90 PWL is achieved when consistently producing joints with an average joint density of at least 92.5% with 1.55% or less variability.

401-6.4 Resampling pavement for mat density.

a. General. Resampling of a lot of pavement will only be allowed for mat density, and then, only if the Contractor requests same, in writing, within 48 hours after receiving the written test results from the RPR. A retest will consist of all the sampling and testing procedures contained in paragraphs 401-6.1d and 401-6.2b. Only one resampling per lot will be permitted.

(1) A redefined PWL will be calculated for the resampled lot. The number of tests used to calculate the redefined PWL will include the initial tests made for that lot plus the retests.

(2) The cost for resampling and retesting shall be borne by the Contractor.

b. Payment for resampled lots. The redefined PWL for a resampled lot will be used to calculate the payment for that lot in accordance with Table 6.

c. Outliers. Check for outliers in accordance with ASTM E178, at a significance level of 5%.

METHOD OF MEASUREMENT

401-7.1 Measurement. Asphalt shall be measured by the number of tons of asphalt used in the accepted work. Batch weights or truck scale weights will be used to determine the basis for the tonnage.

BASIS OF PAYMENT

401-8.1 Payment. Payment for a lot of asphalt meeting all acceptance criteria as specified in paragraph 401-6.2 shall be made based on results of tests for mat density and air voids. Payment for acceptable lots shall be adjusted according to paragraph 401-8.1c for mat density and air voids; and paragraph 401-6.2c for joint density, subject to the limitation that:

a. The total project payment for plant mix asphalt pavement shall not exceed 100 percent of the product of the contract unit price and the total number of tons (kg) of asphalt used in the accepted work.

b. The price shall be compensation for furnishing all materials, for all preparation, mixing, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

c. Basis of adjusted payment. The pay factor for each individual lot shall be calculated in accordance with Table 6. A pay factor shall be calculated for both mat density and air voids. The lot pay factor shall be the higher of the two values when calculations for both mat density and air voids are 100% or higher. The lot pay factor shall be the product of the two values when only one of the calculations for either mat density or air voids is 100% or higher. The lot pay factor shall be the lower of the two values when calculations for both mat density and air voids are less than 100%. If PWL for joint density is less than 71% then the lot pay factor shall be reduced by 5% but be no higher than 95%.

For each lot accepted, the adjusted contract unit price shall be the product of the lot pay factor for the lot and the contract unit price. Payment shall be subject to the total project payment limitation specified in paragraph 401-8.1a. Payment in excess of 100% for accepted lots of asphalt shall be used to offset payment for accepted lots of asphalt pavement that achieve a lot pay factor less than 100%.

Payment for sublots which do not meet grade in accordance with paragraph 401-6.2d after correction for over 25% of the sublot shall be reduced by 5%.

Table 6. Price adjustment schedule[1]

Percentage of material within specification limits (PWL)	Lot pay factor (percent of contract unit price)
96 – 100	106
90 – 95	PWL + 10
75 – 89	0.5 PWL + 55
55 – 74	1.4 PWL – 12
Below 55	Reject [2]

[1] Although it is theoretically possible to achieve a pay factor of 106% for each lot, actual payment above 100% shall be subject to the total project payment limitation specified in paragraph 401-8.1a.

[2] The lot shall be removed and replaced. However, the RPR may decide to allow the rejected lot to remain. In that case, if the RPR and Contractor agree in writing that the lot shall not be removed, it shall be paid for at 50% of the contract unit price and the total project payment shall be reduced by the amount withheld for the rejected lot.

d. Profilograph Roughness. Not used**.**

401-8.1 Payment.

Payment will be made under:

Item P-401-1	2” Min. Variable Asphalt Surface Course – per ton

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C29	Standard Test Method for Bulk Density (“Unit Weight”) and Voids in Aggregate
ASTM C88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C117	Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C127	Standard Test Method for Density, Relative Density (Specific Gravity) and Absorption of Coarse Aggregate
ASTM C131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C142	Standard Test Method for Clay Lumps and Friable Particles in Aggregates
ASTM C566	Standard Test Method for Total Evaporable Moisture Content of Aggregate by Drying
ASTM D75	Standard Practice for Sampling Aggregates

ASTM D242	Standard Specification for Mineral Filler for Bituminous Paving Mixtures
ASTM D946	Standard Specification for Penetration-Graded Asphalt Cement for Use in Pavement Construction
ASTM D979	Standard Practice for Sampling Asphalt Paving Mixtures
ASTM D1073	Standard Specification for Fine Aggregate for Asphalt Paving Mixtures
ASTM D1188	Standard Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Coated Samples
ASTM D2172	Standard Test Method for Quantitative Extraction of Bitumen from Asphalt Paving Mixtures
ASTM D1461	Standard Test Method for Moisture or Volatile Distillates in Asphalt Paving Mixtures
ASTM D2041	Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
ASTM D2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
ASTM D2489	Standard Practice for Estimating Degree of Particle Coating of Bituminous-Aggregate Mixtures
ASTM D2726	Standard Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures
ASTM D2950	Standard Test Method for Density of Bituminous Concrete in Place by Nuclear Methods
ASTM D3203	Standard Test Method for Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures
ASTM D3381	Standard Specification for Viscosity-Graded Asphalt Cement for Use in Pavement Construction
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D3666	Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials
ASTM D4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D4552	Standard Practice for Classifying Hot-Mix Recycling Agents
ASTM D4791	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM D4867	Standard Test Method for Effect of Moisture on Asphalt Concrete Paving Mixtures
ASTM D5361	Standard Practice for Sampling Compacted Asphalt Mixtures for Laboratory Testing
ASTM D5444	Standard Test Method for Mechanical Size Analysis of Extracted Aggregate

ASTM D5821	Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate
ASTM D6084	Standard Test Method for Elastic Recovery of Bituminous Materials by Ductilometer
ASTM D6307	Standard Test Method for Asphalt Content of Hot Mix Asphalt by Ignition Method
ASTM D6373	Standard Specification for Performance Graded Asphalt Binder
ASTM D6752	Standard Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Automatic Vacuum Sealing Method
ASTM D6925	Standard Test Method for Preparation and Determination of the Relative Density of Hot Mix Asphalt (HMA) Specimens by Means of the SuperPave Gyratory Compactor.
ASTM D6926	Standard Practice for Preparation of Bituminous Specimens Using Marshall Apparatus
ASTM D6927	Standard Test Method for Marshall Stability and Flow of Bituminous Mixtures
ASTM D6995	Standard Test Method for Determining Field VMA based on the Maximum Specific Gravity of the Mix (Gmm)
ASTM E11	Standard Specification for Woven Wire Test Sieve Cloth and Test Sieves
ASTM E178	Standard Practice for Dealing with Outlying Observations
ASTM E1274	Standard Test Method for Measuring Pavement Roughness Using a Profilograph
ASTM E950	Standard Test Method for Measuring the Longitudinal Profile of Traveled Surfaces with an Accelerometer Established Inertial Profiling Reference
ASTM E2133	Standard Test Method for Using a Rolling Inclinometer to Measure Longitudinal and Transverse Profiles of a Traveled Surface

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO M156	Standard Specification for Requirements for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures.
AASHTO T329	Standard Method of Test for Moisture Content of Hot Mix Asphalt (HMA) by Oven Method
AASHTO T324	Standard Method of Test for Hamburg Wheel-Track Testing of Compacted Asphalt Mixtures
AASHTO T 340	Standard Method of Test for Determining the Rutting Susceptibility of Hot Mix Asphalt (APA) Using the Asphalt Pavement Analyzer (APA)

Asphalt Institute (AI)

Asphalt Institute Handbook MS-26, Asphalt Binder	
Asphalt Institute MS-2	Mix Design Manual, 7th Edition

AI State Binder Specification Database

Federal Highway Administration (FHWA)

Long Term Pavement Performance Binder Program

Advisory Circulars (AC)

AC 150/5320-6	Airport Pavement Design and Evaluation

FAA Orders

5300.1	Modifications to Agency Airport Design, Construction, and Equipment Standards

Software

FAARFIELD

END OF ITEM P-401

ITEM P-501 CEMENT CONCRETE PAVEMENT

DESCRIPTION

501-1.1 This work shall consist of pavement composed of cement concrete with reinforcement and without reinforcement constructed on a prepared underlying surface in accordance with these specifications and shall conform to the lines, grades, thickness, and typical cross-sections shown on the plans. The terms cement concrete, hydraulic cement concrete, and concrete are interchangeable in this specification.

MATERIALS

501-2.1 Aggregates.

a. Reactivity. Fine and Coarse aggregates to be used in PCC on this project shall be tested and evaluated by the Contractor for alkali-aggregate reactivity in accordance with both ASTM C1260 and ASTM C1567. Tests must be representative of aggregate sources which will be providing material for production. ASTM C1260 and ASTM C1567 tests may be run concurrently.

(1) Coarse aggregate and fine aggregate shall be tested separately in accordance with ASTM C1260, however, the length of test shall be extended to 28 days (30 days from casting). Tests must have been completed within 6 months of the date of the concrete mix submittal. If expansion of either the coarse or fine aggregate exceeds 0.10%, at 28 days limit the alkali loading contributed by the cement content of the cement to be less than or equal to 3.0 lb. per cubic yard, calculated in accordance with EB XXX.

(2) The combined coarse and fine aggregate shall be tested in accordance with ASTM C1567, modified for combined aggregates, using the proposed mixture design proportions of aggregates, cementitious materials, and/or specific reactivity reducing chemicals. If the expansion does not exceed 0.10% at 28 days, the proposed combined materials will be accepted. If the expansion is greater than 0.10% at 28 days, the aggregates will not be accepted unless adjustments to the combined materials mixture can reduce the expansion to less than 0.10% at 28 days, or new aggregates shall be evaluated and tested.

(3) If lithium nitrate is proposed for use with or without supplementary cementitious materials, the aggregates shall be tested in accordance with Corps of Engineers (COE) Concrete Research Division (CRD) C662 in lieu of ASTM C1567. If lithium nitrate admixture is used, it shall be nominal 30% ±0.5% weight lithium nitrate in water. If the expansion does not exceed 0.10% at 28 days, the proposed combined materials will be accepted. If the expansion is greater than 0.10% at 28 days, the aggregates will not be accepted unless adjustments to the combined materials mixture can reduce the expansion to less than 0.10% at 28 days, or new aggregates shall be evaluated and tested.

b. Fine aggregate. Grading of the fine aggregate, as delivered to the mixer, shall conform to the requirements of ASTM C33 and the parameters identified in the fine aggregate material requirements below. Fine aggregate material requirements and deleterious limits are shown in the table below.

Fine Aggregate Material Requirements		
Soundness of Aggregates by Use of Sodium Sulfate **or** Magnesium Sulfate	Loss after 5 cycles: 10% maximum using Sodium sulfate - or - 15% maximum using magnesium sulfate	ASTM C88
Sand Equivalent	45 minimum	ASTM D2419
Fineness Modulus (FM)	$2.50 \leq FM \leq 3.40$	ASTM C136
Limits for Deleterious Substances in Fine Aggregate for Concrete		
Clay lumps and friable particles	1.0% maximum	ASTM C142
Coal and lignite	0.5% using a medium with a density of Sp. Gr. of 2.0	ASTM C123
Total Deleterious Material	1.0% maximum	

c. Coarse aggregate. The maximum size coarse aggregate shall be 1-1/2 inches. When the nominal maximum size of the aggregate is greater than one inch, the coarse aggregate shall be furnished in two sizes.

The coarse aggregate shall consist entirely of granite, calcite cemented sandstone, quartzite, basalt, diabase, rhyolite, or trap rock. All coarse aggregate shall come from a large, accessible, uniform geological formation and be easily field identifiable in the concrete.

Aggregates delivered to the mixer shall be clean, hard, uncoated aggregates consisting of crushed stone, crushed or uncrushed gravel, air-cooled iron blast furnace slag, crushed recycled concrete pavement, or a combination. The aggregates shall have no known history of detrimental pavement staining. Steel blast furnace slag shall not be permitted. Coarse aggregate material requirements and deleterious limits are shown in the table below; washing may be required to meet aggregate requirements.

Coarse Aggregate Material Requirements

Material Test	Requirement	Standard
Resistance to Degradation	Loss: 40% maximum	ASTM C131
Soundness of Aggregates by Use of Sodium Sulfate **or** Magnesium Sulfate	Loss after 5 cycles: 12% maximum using Sodium sulfate - or - 18% maximum using magnesium sulfate	ASTM C88
Flat, Elongated, or Flat and Elongated Particles	8% maximum, by weight, of flat, elongated, or flat and elongated particles at 5:1 for any size group coarser than 3/8 (9.5 mm) sieve [1]	ASTM D4791
Bulk density of slag [2]	Weigh not less than 70 pounds per cubic foot (1.12 Mg/cubic meter)	ASTM C29

[1] A flat particle is one having a ratio of width to thickness greater than five (5); an elongated particle is one having a ratio of length to width greater than five (5).

[2] Only required if slag is specified.

The amount of deleterious material in the coarse aggregate shall not exceed the following limits:

Limits for Deleterious Substances in Coarse Aggregate

Deleterious material	ASTM	Percentage by Mass
Clay Lumps and friable particles	ASTM C142	1.0
Material finer than No. 200 sieve (75 µm)	ASTM C117	1.0[1]
Lightweight particles	ASTM C123 using a medium with a density of Sp. Gr. of 2.0	0.5
Chert[2] (less than 2.40 Sp Gr.)	ASTM C123 using a medium with a density of Sp. Gr. of 2.40)	0.1

[1] The limit for material finer than 75-µm is allowed to be increased to 1.5% for crushed aggregates consisting of dust of fracture that is essentially free from clay or shale. Test results supporting acceptance of increasing limit to 1.5% with statement indicating material is dust of fracture must be submitted with Concrete mix. Acceptable techniques to characterizing these fines include methylene blue adsorption or X-ray diffraction analysis.

[2] Chert and aggregates with less than 2.4 specific gravity.

d. Combined aggregate gradation. This specification is targeted for a combined aggregate gradation developed following the guidance presented in United States Air Force Engineering Technical Letter (ETL) 97-5: Proportioning Concrete Mixtures with Graded Aggregates for Rigid Airfield Pavements. Base the aggregate grading upon a combination of all the aggregates (coarse and fine) to be used for the mixture proportioning. Three aggregate sizes may be required to achieve an optimized combined gradation that will produce a workable concrete mixture for its intended use. Use aggregate gradations that produce concrete mixtures with well-graded or optimized aggregate combinations. The Contractor shall submit complete mixture information necessary to calculate the volumetric components of the mixture. The combined aggregate grading shall meet the following requirements:

(1) The materials selected and the proportions used shall be such that when the Coarseness Factor (CF) and the Workability Factor (WF) are plotted on a diagram as described in paragraph 501-2.1d(4) below, the point thus determined shall fall within the parallelogram described therein.

(2) The CF shall be determined from the following equation:

CF = (cumulative percent retained on the 3/8 in. (9.5 mm) sieve)(100) / (cumulative percent retained on the No. 8 (2.36 mm) sieve)

(3) The WF is defined as the percent passing the No. 8 (2.36 mm) sieve based on the combined gradation. However, WF shall be adjusted, upwards only, by 2.5 percentage points for each 94 pounds (42 kg) of cementitious material per cubic meter yard greater than 564 pounds per cubic yard (335 kg per cubic meter).

(4) A diagram shall be plotted using a rectangular scale with WF on the Y-axis with units from 20 (bottom) to 45 (top), and with CF on the X-axis with units from 80 (left side) to 30 (right side). On this diagram a parallelogram shall be plotted with corners at the following coordinates (CF-75, WF-28), (CF-75, WF-40), (CF-45, WF-32.5), and (CF-45, WF-44.5). If the point determined by the intersection of the computed CF and WF does not fall within the above parallelogram, the grading of each size of aggregate used and the proportions selected shall be changed as necessary. The point determined by the plotting of the CF and WF may be adjusted during production ±3 WF and ±5 CF. Adjustments to gradation may not take the point outside of the parallelogram.

e. Contractors combined aggregate gradation. The Contractor shall submit their combined aggregate gradation using the following format:

Contractor's Combined Aggregate Gradation

Sieve Size	Contractor's Concrete mix Gradation (Percent passing by weight)
2 inch (50 mm)	*
1-1/2 inch (37.5 mm)	*
1 inch (25.0 mm)	*
3/4 inch (19.0 mm)	*
1/2 inch (12.5 mm)	*
3/8 inch (9.5 mm)	*
No. 4 (4.75 mm)	*
No. 8 (2.36 mm)	*
No. 16 (1.18 mm)	*
No. 30 (600 µm)	*
No. 50 (300 µm)	*
No. 100 (150 µm)	*

501-2.2 Cement. Cement shall conform to the requirements of ASTM C150, *Types I or II;* ASTM C595, *Types IS, IP, IL, or IT.* Cements shall contain less than 0.6% equivalent alkali, and the low reactivity option in ASTM C595 or Option R in ASTM C1157 is required.

501-2.3 Cementitious materials.

a. Fly ash. Fly ash shall meet the requirements of ASTM C618, with the exception of loss of ignition, where the maximum shall be less than 6%. Fly ash shall have a Calcium Oxide (CaO) content of less than 15% and a total alkali content less than 3% per ASTM C311. The Contractor shall furnish the previous three most recent, consecutive ASTM C618 reports for each source of fly ash proposed in the concrete mix, and shall furnish each additional report as they become available during the project. The reports can be used for acceptance or the material may be tested independently by the Resident Project Representative (RPR).

b. Slag cement (ground granulated blast furnace (GGBF)). Slag cement shall conform to ASTM C989, Grade 100 or Grade 120. Slag cement shall be used only at a rate between 25% and 55% of the total cementitious material by mass.

c. Raw or calcined natural pozzolan. Natural pozzolan shall be raw or calcined and conform to ASTM C618, Class N, including the optional requirements for uniformity and effectiveness in controlling Alkali-Silica reaction and shall have a loss on ignition not exceeding 6%. Class N pozzolan for use in mitigating Alkali-Silica Reactivity shall have a total available alkali content less than 3%.

d. Ultrafine fly ash and ultrafine pozzolan. UltraFine Fly Ash (UFFA) and UltraFine Pozzolan (UFP) shall conform to ASTM C618, Class F or N, and the following additional requirements:

(1) The strength activity index at 28 days of age shall be at least 95% of the control specimens.

(2) The average particle size shall not exceed 6 microns.

501-2.4 Joint seal. The joint seal for the joints in the concrete pavement shall meet the requirements of Item P-604 and Item P-605 and shall be of the type specified in the plans.

501-2.5 Isolation joint filler. Premolded joint filler for isolation joints shall conform to the requirements of ASTM D1751 or ASTM D1752 and shall be where shown on the plans. The filler for each joint shall be furnished in a single piece for the full depth and width required for the joint, unless otherwise specified by the RPR. When the use of more than one piece is required for a joint, the abutting ends shall be fastened securely and held accurately to shape by stapling or other positive fastening means satisfactory to the RPR.

501-2.6 Steel reinforcement. Reinforcing shall consist of welded steel wire fabric reinforcement conforming to the requirements of ASTM A1064 and deformed steel bars conforming to the requirements of ASTM A615, Grade 60.

501-2.7 Dowel and tie bars. Dowel bars shall be plain steel bars conforming to ASTM A615 and shall be free from burring or other deformation restricting slippage in the concrete.

a. Dowel Bars. Before delivery to the construction site each dowel bar shall be epoxy coated per ASTM A1078, Type 1, with a coating thickness after curing greater than 10 mils. Patched ends are not required for Type 1 coated dowels. The dowels shall be coated with a bond-breaker recommended by the manufacturer. Dowel sleeves or inserts are not permitted. Grout retention rings shall be fully circular metal or plastic devices capable of supporting the dowel until the grout hardens.

b. Tie Bars. Tie bars shall be deformed steel bars and conform to the requirements of ASTM A615. Tie bars designated as Grade 60 in ASTM A615 or ASTM A706 shall be used for construction requiring bent bars.

501-2.8 Water. Water used in mixing or curing shall be potable. If water is taken from other sources considered non-potable, it shall meet the requirements of ASTM C1602.

501-2.9 Material for curing concrete and bond breaker. Curing materials shall conform to one of the following specifications:

a. Liquid membrane-forming compounds for curing concrete shall conform to the requirements of ASTM C309, Type 2, Class A, or Class B.

b. White polyethylene film for curing concrete shall conform to the requirements of ASTM C171.

c. White burlap-polyethylene sheeting for curing concrete shall conform to the requirements of ASTM C171.

d. Waterproof paper for curing concrete shall conform to the requirements of ASTM C171.

501-2.10 Admixtures. Admixtures shall conform to the following specifications:

a. Air-entraining admixtures. Air-entraining admixtures shall meet the requirements of ASTM C260 and shall consistently entrain the air content in the specified ranges under field conditions. The air-entraining agent and any water reducer admixture shall be compatible.

b. Water-reducing admixtures. Water-reducing admixture shall meet the requirements of ASTM C494, Type A, B, or D.

c. Other admixtures. The use of set retarding and set-accelerating admixtures shall be approved by the RPR prior to developing the concrete mix. Retarding admixtures shall meet the requirements of ASTM C494, Type A, B, or D and set-accelerating admixtures shall meet the requirements of ASTM C494, Type C. Calcium chloride and admixtures containing calcium chloride shall not be used.

d. Lithium Nitrate. The lithium admixture shall be a nominal 30% aqueous solution of Lithium Nitrate, with a density of 10 pounds/gallon (1.2 kg/L), and shall have the approximate chemical form as shown below:

Lithium Admixture

Constituent	Limit (Percent by Mass)
LiNO3 (Lithium Nitrate)	30 ±0.5
SO4 (Sulfate Ion)	0.1 (max)
Cl (Chloride Ion)	0.2 (max)
Na (Sodium Ion)	0.1 (max)
K (Potassium Ion)	0.1 (max)

The lithium nitrate admixture dispensing and mixing operations shall be verified and certified by the lithium manufacturer's representative.

501-2.11 Epoxy-resin. All epoxy-resin materials shall be two-component materials conforming to the requirements of ASTM C881, Class as appropriate for each application temperature to be encountered, except that in addition, the materials shall meet the following requirements:

a. Material for use for embedding dowels and anchor bolts shall be Type IV, Grade 3.

b. Material for use as patching materials for complete filling of spalls and other voids and for use in preparing epoxy resin mortar shall be Type III, Grade as approved.

c. Material for use for injecting cracks shall be Type IV, Grade 1.

d. Material for bonding freshly mixed Portland cement concrete or mortar or freshly mixed epoxy resin concrete or mortar to hardened concrete shall be Type V, Grade as approved.

501-2.12 Bond Breaker. Liquid membrane forming compound shall be in accordance with paragraph 501-2.9.

CONCRETE MIX

501-3.1. General. No concrete shall be placed until an acceptable concrete mix has been submitted to the RPR for review and the RPR has taken appropriate action. The RPR's review shall not relieve the Contractor of the responsibility to select and proportion the materials to comply with this section.

501-3.2 Concrete Mix Laboratory. The laboratory used to develop the concrete mix shall be accredited in accordance with ASTM C1077. The laboratory accreditation must be current and listed on the accrediting authority's website. All test methods required for developing the concrete mix must be included in the lab accreditation. A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the RPR prior to start of construction.

501-3.3 Concrete Mix Proportions. Develop the mix using the procedures contained in Portland Cement Association (PCA) publication, "Design and Control of Concrete Mixtures." Concrete shall be proportioned to achieve a 28-day flexural strength that meets or exceeds the acceptance criteria contained in paragraph 501-6.6 for a flexural strength of 650 psi per ASTM C78.

The minimum cementitious material shall be adequate to ensure a workable, durable mix. The minimum cementitious material (cement plus fly ash, or slag cement) shall be 517 pounds per cubic yard. The ratio of water to cementitious material, including free surface moisture on the aggregates but not including moisture absorbed by the aggregates shall be between 0.38 – 0.45 by weight.

Flexural strength test specimens shall be prepared in accordance with ASTM C192 and tested in accordance with ASTM C78. At the start of the project, the Contractor shall determine an allowable

slump as determined by ASTM C143 not to exceed 2 inches for slip-form placement. For fixed-form placement, the slump shall not exceed 3 inches. For hand placement, the slump shall not exceed 4 inches.

The results of the concrete mix shall include a statement giving the maximum nominal coarse aggregate size and the weights and volumes of each ingredient proportioned on a one cubic yard (meter) basis. Aggregate quantities shall be based on the mass in a saturated surface dry condition.

If a change in source(s) is made, or admixtures added or deleted from the mix, a new concrete mix must be submitted to the RPR for approval.

The RPR may request samples at any time for testing, prior to and during production, to verify the quality of the materials and to ensure conformance with the applicable specifications.

501-3.4 Concrete Mix submittal. The concrete mix shall be submitted to the RPR at least 30 days prior to the start of operations. The submitted concrete mix shall not be more than 180 days old and must use the materials to be used for production for the project. The Contractor shall submit certified tests reports to the RPR for those materials proposed for use during construction. Tests older than six (6) months shall not be used. Production shall not begin until the concrete mix is approved in writing by the RPR.

Each of the submitted concrete mixes (i.e, slip form, side form machine finish and side form hand finish) shall be stamped or sealed by the responsible professional Engineer of the laboratory and shall include the following items and quantities as a minimum:

- Certified material test reports for aggregate in accordance with paragraph 501-2.1. Certified reports must include all tests required; reporting each test, test method, test result, and requirement specified (criteria).
- Combined aggregate gradations and analysis; and including plots of the fine aggregate fineness modulus.
- Reactivity Test Results.
- Coarse aggregate quality test results, including deleterious materials.
- Fine aggregate quality test results, including deleterious materials.
- Mill certificates for cement and supplemental cementitious materials.
- Certified test results for all admixtures, including Lithium Nitrate if applicable.
- Specified flexural strength, slump, and air content.
- Recommended proportions/volumes for proposed mixture and trial water-cementitious materials ratio, including actual slump and air content.
- Flexural and compressive strength summaries and plots, including all individual beam and cylinder breaks.
- Correlation ratios for acceptance testing and Contractor QC testing, when applicable.
- Historical record of test results documenting production standard deviation, when applicable.
- Alkali loading contributed by the cement per cubic yard, calculated in accordance with EB XXX.

501-3.5 Cementitious materials.

a. Fly ash. When fly ash is used as a partial replacement for cement, the replacement rate shall be determined from laboratory trial mixes, and shall be between 20 and 30% by weight of the total

cementitious material. If fly ash is used in conjunction with slag cement the maximum replacement rate shall not exceed 10% by weight of total cementitious material.

b. Slag cement (ground granulated blast furnace (GGBF)). Slag cement may be used. The slag cement, or slag cement plus fly ash if both are used, may constitute between 25 to 55% of the total cementitious material by weight.

c. Raw or calcined natural pozzolan. Natural pozzolan may be used in the concrete mix. When pozzolan is used as a partial replacement for cement, the replacement rate shall be determined from laboratory trial mixes, and shall be between 20 and 30% by weight of the total cementitious material. If pozzolan is used in conjunction with slag cement the maximum replacement rate shall not exceed 10% by weight of total cementitious material.

d. Ultrafine fly ash (UFFA) and ultrafine pozzolan (UFP). UFFA and UFP may be used in the concrete mix with the RPR's approval. When UFFA and UFP is used as a partial replacement for cement, the replacement rate shall be determined from laboratory trial mixes, and shall be between 7% and 16% by weight of the total cementitious material.

501-3.6 Admixtures.

a. Air-entraining admixtures. Air-entraining admixture are to be added in such a manner that will ensure uniform distribution of the agent throughout the batch. The air content of freshly mixed air-entrained concrete shall be based upon trial mixes with the materials to be used in the work adjusted to produce concrete of the required plasticity and workability. The percentage of air in the mix shall be 5.5% for 1-1/2 inch maximum size aggregate and 6% for 1 inch maximum size aggregate. Air content shall be determined by testing in accordance with ASTM C231 for gravel and stone coarse aggregate and ASTM C173 for slag and other highly porous coarse aggregate.

b. Water-reducing admixtures. Water-reducing admixtures shall be added to the mix in the manner recommended by the manufacturer and in the amount necessary to comply with the specification requirements. Tests shall be conducted with the materials to be used in the work, in accordance with ASTM C494.

c. Other admixtures. Set controlling, and other approved admixtures shall be added to the mix in the manner recommended by the manufacturer and in the amount necessary to comply with the specification requirements. Tests shall be conducted with the materials to be used in the work, in accordance with ASTM C494.

d. Lithium nitrate. Lithium nitrate shall be added to the mix in the manner recommended by the manufacturer and in the amount necessary to comply with the specification requirements in accordance with paragraph 501-2.10d.

CONSTRUCTION METHODS

501-4.1 Control Strip. The control strip(s) shall be to the next planned joint after the initial 250 feet of each type of pavement construction (slip-form pilot lane, slip-form fill-in lane, or fixed form). The Contractor shall demonstrate, in the presence of the RPR, that the materials, concrete mix, equipment, construction processes, and quality control processes meet the requirements of the specifications. The concrete mixture shall be extruded from the paver meeting the edge slump tolerance and with little or no finishing. Pilot, fill-in, and fixed-form control strips will be accepted separately. Minor adjustments to the mix design may be required to place an acceptable control strip. The production mix will be the adjusted mix design used to place the acceptable control strip. Upon acceptance of the control strip by the RPR, the Contractor must use the same equipment, materials, and construction methods for the remainder of concrete paving. Any adjustments to processes or materials must be approved in advance by the RPR. Acceptable control strips will meet edge slump tolerance and surface acceptable with little or no finishing,

air content within action limits, strength equal or greater than requirements of P501-3.3. The control strip will be considered one lot for payment (no sublots required for control strip). Payment will only be made for an acceptable control strip in accordance with paragraph 501-8.1 using a lot pay factor equal to 100.

501-4.2 Equipment. The Contractor is responsible for the proper operation and maintenance of all equipment necessary for handling materials and performing all parts of the work to meet this specification.

a. Plant and equipment. The plant and mixing equipment shall conform to the requirements of ASTM C94 and/or ASTM C685. Each truck mixer shall have attached in a prominent place a manufacturer's nameplate showing the capacity of the drum in terms of volume of mixed concrete and the speed of rotation of the mixing drum or blades. The truck mixers shall be examined daily for changes in condition due to accumulation of hard concrete or mortar or wear of blades. The pickup and throwover blades shall be replaced when they have worn down 3/4 inch (19 mm) or more. The Contractor shall have a copy of the manufacturer's design on hand showing dimensions and arrangement of blades in reference to original height and depth.

Equipment for transferring and spreading concrete from the transporting equipment to the paving lane in front of the finishing equipment shall be provided. The equipment shall be specially manufactured, self-propelled transfer equipment which will accept the concrete outside the paving lane and will spread it evenly across the paving lane in front of the paver and strike off the surface evenly to a depth which permits the paver to operate efficiently.

b. Finishing equipment.

(1) Slip-form. The standard method of constructing concrete pavements shall be with an approved slip-form paving equipment designed and operated to spread, consolidate, screed, and finish the freshly placed concrete in one complete pass of the machine so that the end result is a dense and homogeneous pavement which is achieved with a minimum of hand finishing. The paver-finisher shall be a heavy duty, self-propelled machine designed specifically for paving and finishing high quality concrete pavements.

(2) Fixed-form. Irregular areas at locations inaccessible to slip-form paving equipment, concrete pavement may be placed with equipment specifically designed for placement and finishing using stationary side forms. Methods and equipment shall be reviewed and accepted by the RPR. Hand screeding and float finishing may only be used on small irregular areas as allowed by the RPR.

c. Vibrators. Vibrator shall be the internal type. The rate of vibration of each vibrating unit shall be sufficient to consolidate the pavement without segregation or voids. The number, spacing, and frequency shall be as necessary to provide a dense and homogeneous pavement and meet the recommendations of American Concrete Institute (ACI) 309R, Guide for Consolidation of Concrete. Adequate power to operate all vibrators shall be available on the paver. The vibrators shall be automatically controlled so that they shall be stopped as forward motion ceases. The Contractor shall provide an electronic or mechanical means to monitor vibrator status. The checks on vibrator status shall occur a minimum of two times per day or when requested by the RPR.

Hand held vibrators may only be used in irregular areas and shall meet the recommendations of ACI 309R, Guide for Consolidation of Concrete.

d. Concrete saws. The Contractor shall provide sawing equipment adequate in number of units and power to complete the sawing to the required dimensions. The Contractor shall provide at least one standby saw in good working order and a supply of saw blades at the site of the work at all times during sawing operations.

e. Fixed forms. Straight side fixed forms shall be made of steel and shall be furnished in sections not less than 10 feet (3 m) in length. Forms shall be provided with adequate devices for secure settings so that

when in place they will withstand, without visible spring or settlement, the impact and vibration of the consolidating and finishing equipment. Forms with battered top surfaces and bent, twisted or broken forms shall not be used. Built-up forms shall not be used, except as approved by the RPR. The top face of the form shall not vary from a true plane more than 1/8 inch (3 mm) in 10 feet (3 m), and the upstanding leg shall not vary more than 1/4 inch (6 mm). The forms shall contain provisions for locking the ends of abutting sections together tightly for secure setting. Wood forms may be used under special conditions, when approved by the RPR. The forms shall extend the full depth of the pavement section.

501-4.3 Form setting. Forms shall be set to line and grade as shown on the plans, sufficiently in advance of the concrete placement, to ensure continuous paving operation. Forms shall be set to withstand, without visible spring or settlement, the impact and vibration of the consolidating and finishing equipment. Forms shall be cleaned and oiled prior to the concrete placement.

501-4.4 Base surface preparation prior to placement. Any damage to the prepared base, subbase, and subgrade shall be corrected full depth by the Contractor prior to concrete placement. The underlying surface shall be entirely free of frost when concrete is placed. The prepared grade shall be moistened with water, without saturating, immediately ahead of concrete placement to prevent rapid loss of moisture from concrete. Bond breaker shall be applied in accordance with 501-2.12.

501-4.5 Handling, measuring, and batching material. Aggregate stockpiles shall be constructed and managed in such a manner that prevents segregation and intermixing of deleterious materials. Aggregates from different sources shall be stockpiled, weighed and batched separately at the concrete batch plant. Aggregates that have become segregated or mixed with earth or foreign material shall not be used. All aggregates produced or handled by hydraulic methods, and washed aggregates, shall be stockpiled or binned for draining at least 12 hours before being batched. Store and maintain all aggregates at a uniform moisture content prior to use. A continuous supply of materials shall be provided to the work to ensure continuous placement.

501-4.6 Mixing concrete. The concrete may be mixed at the work site, in a central mix plant or in truck mixers. The mixer shall be of an approved type and capacity. Mixing time shall be measured from the time all materials are placed into the drum until the drum is emptied into the truck. All concrete shall be mixed and delivered to the site in accordance with the requirements of ASTM C94 or ASTM C685.

Mixed concrete from the central mixing plant shall be transported in truck mixers, truck agitators, or non-agitating trucks. The elapsed time from the addition of cementitious material to the mix until the concrete is discharged from the truck should not exceed 30 minutes when the concrete is hauled in non-agitating trucks, nor 90 minutes when the concrete is hauled in truck mixers or truck agitators. In no case shall the temperature of the concrete when placed exceed 90°F. Retempering concrete by adding water or by other means will not be permitted. With transit mixers additional water may be added to the batch materials and additional mixing performed to increase the slump to meet the specified requirements provided the addition of water is performed within 45 minutes after the initial mixing operations and provided the water/cementitious ratio specified is not exceeded.

501-4.7 Weather Limitations on mixing and placing. No concrete shall be mixed, placed, or finished when the natural light is insufficient, unless an adequate and approved artificial lighting system is operated.

a. Cold weather. Unless authorized in writing by the RPR, mixing and concreting operations shall be discontinued when a descending air temperature in the shade and away from artificial heat reaches 40°F and shall not be resumed until an ascending air temperature in the shade and away from artificial heat reaches 35°F.

The aggregate shall be free of ice, snow, and frozen lumps before entering the mixer. The temperature of the mixed concrete shall not be less than 50°F at the time of placement. Concrete shall not be placed on frozen material nor shall frozen aggregates be used in the concrete.

When concreting is authorized during cold weather, water and/or the aggregates may be heated to not more than 150°F. The apparatus used shall heat the mass uniformly and shall be arranged to preclude the possible occurrence of overheated areas which might be detrimental to the materials.

Curing during cold weather shall be in accordance with paragraph 501-4.13d.

b. Hot weather. During periods of hot weather when the maximum daily air temperature exceeds 85°F, the following precautions shall be taken.

The forms and/or the underlying surface shall be sprinkled with water immediately before placing the concrete. The concrete shall be placed at the coolest temperature practicable, and in no case shall the temperature of the concrete when placed exceed 90°F. The aggregates and/or mixing water shall be cooled as necessary to maintain the concrete temperature at or not more than the specified maximum.

The concrete placement shall be protected from exceeding an evaporation rate of 0.2 psf per hour. When conditions are such that problems with plastic cracking can be expected, and particularly if any plastic cracking begins to occur, the Contractor shall immediately take such additional measures as necessary to protect the concrete surface. If the Contractor's measures are not effective in preventing plastic cracking, paving operations shall be immediately stopped.

Curing during hot weather shall be in accordance with paragraph 501-4.13e.

c. Temperature management program. Prior to the start of paving operation for each day of paving, the Contractor shall provide the RPR with a Temperature Management Program for the concrete to be placed to assure that uncontrolled cracking is avoided. (Federal Highway Administration HIPERPAV 3 is one example of a temperature management program.) As a minimum, the program shall address the following items:

(1) Anticipated tensile strains in the fresh concrete as related to heating and cooling of the concrete material.

(2) Anticipated weather conditions such as ambient temperatures, wind velocity, and relative humidity; and anticipated evaporation rate using Figure 19-9, PCA, Design and Control of Concrete Mixtures.

(3) Anticipated timing of initial sawing of joint.

(4) Anticipated number and type of saws to be used.

d. **Rain.** The Contractor shall have available materials for the protection of the concrete during inclement weather. Such protective materials shall consist of rolled polyethylene sheeting at least 4 mils (0.1 mm) thick of sufficient length and width to cover the plastic concrete slab and any edges. The sheeting may be mounted on either the paver or a separate movable bridge from which it can be unrolled without dragging over the plastic concrete surface. When rain appears imminent, all paving operations shall stop and all available personnel shall begin covering the surface of the unhardened concrete with the protective covering.

501-4.8 Concrete Placement. At any point in concrete conveyance, the free vertical drop of the concrete from one point to another or to the underlying surface shall not exceed 3 feet (1 m). The finished concrete product must be dense and homogeneous, without segregation and conforming to the standards in this specification. Backhoes and grading equipment shall not be used to distribute the concrete in front of the paver. Front end loaders will not be used. All concrete shall be consolidated without voids or segregation, including under and around all load-transfer devices, joint assembly units, and other features embedded in the pavement. Hauling equipment or other mechanical equipment can be permitted on adjoining previously constructed pavement when the concrete strength reaches a flexural strength of 550 psi, based on the average of four field cured specimens per 2,000 cubic yards of concrete placed. The Contractor must determine that the above minimum strengths are adequate to protection the pavement from overloads due to the construction equipment proposed for the project.

The Contractor shall have available materials for the protection of the concrete during cold, hot and/or inclement weather in accordance with paragraph 501-4.7.

a. Slip-form construction. The concrete shall be distributed uniformly into final position by a self-propelled slip-form paver without delay. The alignment and elevation of the paver shall be regulated from outside reference lines established for this purpose. The paver shall vibrate the concrete for the full width and depth of the strip of pavement being placed and the vibration shall be adequate to provide a consistency of concrete that will stand normal to the surface with sharp well-defined edges. The sliding forms shall be rigidly held together laterally to prevent spreading of the forms. The plastic concrete shall be effectively consolidated by internal vibration with transverse vibrating units for the full width of the pavement and/or a series of equally placed longitudinal vibrating units. The space from the outer edge of the pavement to longitudinal unit shall not exceed 9 inches for slipform and at the end of the dowels for the fill-in lanes. The spacing of internal units shall be uniform and shall not exceed 18 inches.

The term internal vibration means vibrating units located within the specified thickness of pavement section.

The rate of vibration of each vibrating unit shall be sufficient to consolidate the pavement without, segregation, voids, or vibrator trails and the amplitude of vibration shall be sufficient to be perceptible on the surface of the concrete along the entire length of the vibrating unit and for a distance of at least one foot (30 cm). The frequency of vibration or amplitude should be adjusted proportionately with the rate of travel to result in a uniform density and air content. The paving machine shall be equipped with a tachometer or other suitable device for measuring and indicating the actual frequency of vibrations.

The concrete shall be held at a uniform consistency. The slip-form paver shall be operated with as nearly a continuous forward movement as possible and all operations of mixing, delivering, and spreading concrete shall be coordinated to provide uniform progress with stopping and starting of the paver held to a minimum. If for any reason, it is necessary to stop the forward movement of the paver, the vibratory and tamping elements shall also be stopped immediately. No tractive force shall be applied to the machine, except that which is controlled from the machine.

When concrete is being placed adjacent to an existing pavement, that part of the equipment which is supported on the existing pavement shall be equipped with protective pads on crawler tracks or rubber-tired wheels on which the bearing surface is offset to run a sufficient distance from the edge of the pavement to avoid breaking the pavement edge.

Not more than 15% of the total free edge of each 500-foot segment of pavement, or fraction thereof, shall have an edge slump exceeding 1/4 inch, and none of the free edge of the pavement shall have an edge slump exceeding 3/8 inch. (The total free edge of 500 feet of pavement will be considered the cumulative total linear measurement of pavement edge originally constructed as nonadjacent to any existing pavement; that is, 500 feet of paving lane originally constructed as a separate lane will have 1,000 feet of free edge, 500 feet of fill-in lane will have no free edge, etc.). The area affected by the downward movement of the concrete along the pavement edge shall be limited to not more than 18 inches from the edge.

When excessive edge slump cannot be corrected before the concrete has hardened, the area with excessive edge slump will be removed the full width of the slip form lane and replaced at the expense of the Contractor as directed by the RPR.

b. Fixed-form construction. Forms shall be drilled in advance of being placed to line and grade to accommodate tie bars / dowel bars where these are specified.

Immediately in advance of placing concrete and after all subbase operations are completed, side forms shall be trued and maintained to the required line and grade for a distance sufficient to prevent delay in placing.

Side forms shall remain in place at least 12 hours after the concrete has been placed, and in all cases until the edge of the pavement no longer requires the protection of the forms. Curing compound shall be applied to the concrete immediately after the forms have been removed.

Side forms shall be thoroughly cleaned and coated with a release agent each time they are used and before concrete is placed against them.

Concrete shall be spread, screed, shaped and consolidated by one or more self-propelled machines. These machines shall uniformly distribute and consolidate concrete without segregation so that the completed pavement will conform to the required cross-section with a minimum of handwork.

The number and capacity of machines furnished shall be adequate to perform the work required at a rate equal to that of concrete delivery. The equipment must be specifically designed for placement and finishing using stationary side forms. Methods and equipment shall be reviewed and accepted by the RPR.

Concrete for the full paving width shall be effectively consolidated by internal vibrators. The rate of vibration of each vibrating unit shall be sufficient to consolidate the pavement without segregation, voids, or leaving vibrator trails.

Power to vibrators shall be connected so that vibration ceases when forward or backward motion of the machine is stopped.

c. Consolidation. Concrete shall be consolidated with the specified type of lane-spanning, gang-mounted, mechanical, immersion type vibrating equipment mounted in front of the paver, supplemented, in rare instances as specified, by hand-operated vibrators. The vibrators shall be inserted into the concrete to a depth that will provide the best full-depth consolidation but not closer to the underlying material than 2 inches. Vibrators shall not be used to transport or spread the concrete. For each paving train, at least one additional vibrator spud, or sufficient parts for rapid replacement and repair of vibrators shall be maintained at the paving site at all times. Any evidence of inadequate consolidation (honeycomb along the edges, large air pockets, or any other evidence) or over-consolidation (vibrator trails, segregation, or any other evidence) shall require the immediate stopping of the paving operation and adjustment of the equipment or procedures as approved by the RPR.

If a lack of consolidation of the hardened concrete is suspected by the RPR, referee testing may be required. Referee testing of hardened concrete will be performed by the RPR by cutting cores from the finished pavement after a minimum of 24 hours curing. The RPR shall visually examine the cores for evidence of lack of consolidation. Density determinations will be made by the RPR based on the water content of the core as taken. ASTM C642 shall be used for the determination of core density in the saturated-surface dry condition. When required, referee cores will be taken at the minimum rate of one for each 500 cubic yards (382 m^2) of pavement, or fraction. The Contractor shall be responsible for all referee testing cost if they fail to meet the required density.

The average density of the cores shall be at least 97% of the original concrete mix density, with no cores having a density of less than 96% of the original concrete mix density. Failure to meet the referee tests will be considered evidence that the minimum requirements for vibration are inadequate for the job conditions. Additional vibrating units or other means of increasing the effect of vibration shall be employed so that the density of the hardened concrete conforms to the above requirements.

501-4.9 Strike-off of concrete and placement of reinforcement. Following the placing of the concrete, it shall be struck off to conform to the cross-section shown on the plans and to an elevation that when the concrete is properly consolidated and finished, the surface of the pavement shall be at the elevation shown on the plans. When reinforced concrete pavement is placed in two layers, the bottom layer shall be struck off to such length and depth that the sheet of reinforcing steel fabric or bar mat may be laid full length on the concrete in its final position without further manipulation. The reinforcement shall then be placed

directly upon the concrete, after which the top layer of the concrete shall be placed, struck off, and screed. If any portion of the bottom layer of concrete has been placed more than 30 minutes without being covered with the top layer or if initial set has taken place, it shall be removed and replaced with freshly mixed concrete at the Contractor's expense. When reinforced concrete is placed in one layer, the reinforcement may be positioned in advance of concrete placement or it may be placed in plastic concrete by mechanical or vibratory means after spreading.

Reinforcing steel, at the time concrete is placed, shall be free of mud, oil, or other organic matter that may adversely affect or reduce bond. Reinforcing steel with rust, mill scale or a combination of both will be considered satisfactory, provided the minimum dimensions, weight, and tensile properties of a hand wire-brushed test specimen are not less than the applicable ASTM specification requirements.

501-4.10 Joints. Joints shall be constructed as shown on the plans and in accordance with these requirements. All joints shall be constructed with their faces perpendicular to the surface of the pavement and finished or edged as shown on the plans. Joints shall not vary more than 1/2-inch from their designated position and shall be true to line with not more than 1/4-inch variation in 10 feet. The surface across the joints shall be tested with a 12-foot straightedge as the joints are finished and any irregularities in excess of 1/4 inch shall be corrected before the concrete has hardened. All joints shall be so prepared, finished, or cut to provide a groove of uniform width and depth as shown on the plans.

a. Construction. Longitudinal construction joints shall be slip-formed or formed against side forms as shown in the plans.

Transverse construction joints shall be installed at the end of each day's placing operations and at any other points within a paving lane when concrete placement is interrupted for more than 30 minutes or it appears that the concrete will obtain its initial set before fresh concrete arrives. The installation of the joint shall be located at a planned contraction or expansion joint. If placing of the concrete is stopped, the Contractor shall remove the excess concrete back to the previous planned joint.

b. Contraction. Contraction joints shall be installed at the locations and spacing as shown on the plans. Contraction joints shall be installed to the dimensions required by forming a groove or cleft in the top of the slab while the concrete is still plastic or by sawing a groove into the concrete surface after the concrete has hardened. When the groove is formed in plastic concrete the sides of the grooves shall be finished even and smooth with an edging tool. If an insert material is used, the installation and edge finish shall be according to the manufacturer's instructions. The groove shall be finished or cut clean so that spalling will be avoided at intersections with other joints. Grooving or sawing shall produce a slot at least 1/8 inch (3 mm) wide and to the depth shown on the plans.

c. Isolation (expansion). Isolation joints shall be installed as shown on the plans. The premolded filler of the thickness as shown on the plans, shall extend for the full depth and width of the slab at the joint. The filler shall be fastened uniformly along the hardened joint face with no buckling or debris between the filler and the concrete interface, including a temporary filler for the sealant reservoir at the top of the slab. The edges of the joint shall be finished and tooled while the concrete is still plastic

d. Dowels and Tie Bars for Joints

(1) Tie bars. Tie bars shall consist of deformed bars installed in joints as shown on the plans. Tie bars shall be placed at right angles to the centerline of the concrete slab and shall be spaced at intervals shown on the plans. They shall be held in position parallel to the pavement surface and in the middle of the slab depth and within the tolerances in paragraph 501-4.10(f.). When tie bars extend into an unpaved lane, they may be bent against the form at longitudinal construction joints, unless threaded bolt or other assembled tie bars are specified. Tie bars shall not be painted, greased, or enclosed in sleeves. When slip-form operations call for tie bars, two-piece hook bolts can be installed.

(2) Dowel bars. Dowel bars shall be placed across joints in the proper horizontal and vertical alignment as shown on the plans. The dowels shall be coated with a bond-breaker or other lubricant

recommended by the manufacturer and approved by the RPR. Dowels bars at longitudinal construction joints shall be bonded in drilled holes.

(3) Placing dowels and tie bars. Horizontal spacing of dowels shall be within a tolerance of ±3/4 inch. The vertical location on the face of the slab shall be within a tolerance of ±1/2 inch. The method used to install dowels shall ensure that the horizontal and vertical alignment will not be greater than 1/4 inch per feet, except for those across the crown or other grade change joints. Dowels across crowns and other joints at grade changes shall be measured to a level surface. Horizontal alignment shall be checked perpendicular to the joint edge. The portion of each dowel intended to move within the concrete or expansion cap shall be wiped clean and coated with a thin, even film of lubricating oil or light grease before the concrete is placed. Dowels shall be installed as specified in the following subparagraphs.

(a) Contraction joints. Dowels and tie bars in longitudinal and transverse contraction joints within the paving lane shall be held securely in place by means of rigid metal frames or basket assemblies of an approved type. The basket assemblies shall be held securely in the proper location by means of suitable pins or anchors. Do not cut or crimp the dowel basket tie wires.

At the Contractor's option, dowels and tie bars in contraction joints may be installed by insertion into the plastic concrete using approved equipment and procedures per the paver manufacturer's design. Approval of installation methods will be based on the results of the control strip showing that the dowels and tie bars are installed within specified tolerances as verified by cores or non-destructive rebar location devices approved by the RPR.

(b) Construction joints. Install dowels and tie bars by the cast-in- place or the drill-and-dowel method. Installation by removing and replacing in preformed holes will not be permitted. Dowels and tie bars shall be prepared and placed across joints where indicated, correctly aligned, and securely held in the proper horizontal and vertical position during placing and finishing operations, by means of devices fastened to the forms.

(c) Joints in hardened concrete. Install dowels in hardened concrete by bonding the dowels into holes drilled into the concrete. The concrete shall have cured for seven (7) days or reached a minimum flexural strength of 450 psi before drilling begins. Holes 1/8 inch greater in diameter than the dowels shall be drilled into the hardened concrete using rotary-core drills. Rotary-percussion drills may be used, provided that excessive spalling does not occur. Spalling beyond the limits of the grout retention ring will require modification of the equipment and operation. Depth of dowel hole shall be within a tolerance of ±1/2 inch of the dimension shown on the drawings. On completion of the drilling operation, the dowel hole shall be blown out with oil-free, compressed air. Dowels shall be bonded in the drilled holes using epoxy resin. Epoxy resin shall be injected at the back of the hole before installing the dowel and extruded to the collar during insertion of the dowel so as to completely fill the void around the dowel. Application by buttering the dowel will not be permitted. The dowels shall be held in alignment at the collar of the hole by means of a suitable metal or plastic grout retention ring fitted around the dowel.

e. Sawing of joints. Sawing shall commence, without regard to day or night, as soon as the concrete has hardened sufficiently to permit cutting without chipping, spalling, or tearing and before uncontrolled shrinkage cracking of the pavement occurs and shall continue without interruption until all joints have been sawn. All slurry and debris produced in the sawing of joints shall be removed by vacuuming and washing. Curing compound or system shall be reapplied in the initial saw-cut and maintained for the remaining cure period.

Joints shall be cut in locations as shown on the plans. The initial joint cut shall be a minimum 1/8 inch wide and to the depth shown on the plans. Prior to placement of joint sealant or seals, the top of the joint shall be widened by sawing as shown on the plans.

501-4.11 Finishing. Finishing operations shall be a continuing part of placing operations starting immediately behind the strike-off of the paver. Initial finishing shall be provided by the transverse screed

or extrusion plate. The sequence of operations shall be transverse finishing, longitudinal machine floating if used, straightedge finishing, edging of joints, and then texturing. Finishing shall be by the machine method. The hand method shall be used only on isolated areas of odd slab widths or shapes and in the event of a breakdown of the mechanical finishing equipment. Supplemental hand finishing for machine finished pavement shall be kept to an absolute minimum. Any machine finishing operation which requires appreciable hand finishing, other than a moderate amount of straightedge finishing, shall be immediately stopped and proper adjustments made or the equipment replaced. Equipment, mixture, and/or procedures which produce more than 1/4 inch of mortar-rich surface shall be immediately modified as necessary to eliminate this condition or operations shall cease. Compensation shall be made for surging behind the screeds or extrusion plate and settlement during hardening and care shall be taken to ensure that paving and finishing machines are properly adjusted so that the finished surface of the concrete (not just the cutting edges of the screeds) will be at the required line and grade. Finishing equipment and tools shall be maintained clean and in an approved condition. At no time shall water be added to the surface of the slab with the finishing equipment or tools, or in any other way. Fog (mist) sprays or other surface applied finishing aids specified to prevent plastic shrinkage cracking, approved by the RPR, may be used in accordance with the manufacturers requirements.

a. Machine finishing with slipform pavers. The slipform paver shall be operated so that only a very minimum of additional finishing work is required to produce pavement surfaces and edges meeting the specified tolerances. Any equipment or procedure that fails to meet these specified requirements shall immediately be replaced or modified as necessary. A self-propelled non-rotating pipe float may be used while the concrete is still plastic, to remove minor irregularities and score marks. Only one pass of the pipe float shall be allowed. Equipment, mixture, and/or procedures which produce more than 1/4 inch of mortar-rich surface shall be immediately modified as necessary to eliminate this condition or operations shall cease. Remove excessive slurry from the surface with a cutting straightedge and wipe off the edge. Any slurry which does run down the vertical edges shall be immediately removed by hand, using stiff brushes or scrapers. No slurry, concrete or concrete mortar shall be used to build up along the edges of the pavement to compensate for excessive edge slump, either while the concrete is plastic or after it hardens.

b. Machine finishing with fixed forms. The machine shall be designed to straddle the forms and shall be operated to screed and consolidate the concrete. Machines that cause displacement of the forms shall be replaced. The machine shall make only one pass over each area of pavement. If the equipment and procedures do not produce a surface of uniform texture, true to grade, in one pass, the operation shall be immediately stopped and the equipment, mixture, and procedures adjusted as necessary.

c. Other types of finishing equipment. Clary screeds, other rotating tube floats, or bridge deck finishers are not allowed on mainline paving, but may be allowed on irregular or odd-shaped slabs, and near buildings or trench drains, subject to the RPR's approval.

Bridge deck finishers shall have a minimum operating weight of 7500 pounds and shall have a transversely operating carriage containing a knock-down auger and a minimum of two immersion vibrators. Vibrating screeds or pans shall be used only for isolated slabs where hand finishing is permitted as specified, and only where specifically approved.

d. Hand finishing. Hand finishing methods will not be permitted, except under the following conditions: (1) in the event of breakdown of the mechanical equipment, hand methods may be used to finish the concrete already deposited on the grade and (2) in areas of narrow widths or of irregular dimensions where operation of the mechanical equipment is impractical.

e. Straightedge testing and surface correction. After the pavement has been struck off and while the concrete is still plastic, it shall be tested for trueness with a 12-foot finishing straightedge swung from handles capable of spanning at least one-half the width of the slab. The straightedge shall be held in contact with the surface in successive positions parallel to the centerline and the whole area gone over from one side of the slab to the other, as necessary. Advancing shall be in successive stages of not more

than one-half the length of the straightedge. Any excess water and laitance in excess of 1/8 inch (3 mm) thick shall be removed from the surface of the pavement and wasted. Any depressions shall be immediately filled with freshly mixed concrete, struck off, consolidated, and refinished. High areas shall be cut down and refinished. Special attention shall be given to assure that the surface across joints meets the smoothness requirements. Straightedge testing and surface corrections shall continue until the entire surface is found to be free from observable departures from the straightedge and until the slab conforms to the required grade and cross-section. The use of long-handled wood floats shall be confined to a minimum; they may be used only in emergencies and in areas not accessible to finishing equipment.

501-4.12 Surface texture. The surface of the pavement shall be finished as designated below for all newly constructed concrete pavements. It is important that the texturing equipment not tear or unduly roughen the pavement surface during the operation. The texture shall be uniform in appearance and approximately 1/16 inch (2 mm) in depth. Any imperfections resulting from the texturing operation shall be corrected to the satisfaction of the RPR.

a. Brush or broom finish. Not used.

b. Burlap drag finish. Burlap, at least 15 ounces per square yard, will typically produce acceptable texture. To obtain a textured surface, the transverse threads of the burlap shall be removed approximately one foot from the trailing edge. A heavy buildup of grout on the burlap threads produces the desired wide sweeping longitudinal striations on the pavement surface.

c. Artificial turf finish. Not used**.**

501-4.13 Curing. Immediately after finishing operations are completed and bleed water is gone from the surface, all exposed surfaces of the newly placed concrete shall be cured for a 7-day cure period in accordance with one of the methods below. Failure to provide sufficient cover material of whatever kind the Contractor may elect to use, or lack of water to adequately take care of both curing and other requirements, shall be cause for immediate suspension of concreting operations. The concrete shall not be left exposed for more than 1/2 hour during the curing period.

When a two-saw-cut method is used to construct the contraction joint, the curing compound shall be applied to the saw-cut immediately after the initial cut has been made. The sealant reservoir shall not be sawed until after the curing period has been completed. When the one cut method is used to construct the contraction joint, the joint shall be cured with wet rope, wet rags, or wet blankets. The rags, ropes, or blankets shall be kept moist for the duration of the curing period.

a. Impervious membrane method. Curing with liquid membrane compounds should not occur until bleed and surface moisture has evaporated. All exposed surfaces of the pavement shall be sprayed uniformly with white pigmented curing compound immediately after the finishing of the surface and before the set of the concrete has taken place. The curing compound shall not be applied during rainfall. Curing compound shall be applied by mechanical sprayers under pressure at the rate of one gallon to not more than 150 square feet. The spraying equipment shall be of the fully atomizing type equipped with a tank agitator. At the time of use, the compound shall be in a thoroughly mixed condition with the pigment uniformly dispersed throughout the vehicle. During application, the compound shall be stirred continuously by mechanical means. Hand spraying of odd widths or shapes and concrete surfaces exposed by the removal of forms will be permitted. When hand spraying is approved by the RPR, a double application rate shall be used to ensure coverage. Should the film become damaged from any cause, including sawing operations, within the required curing period, the damaged portions shall be repaired immediately with additional compound or other approved means. Upon removal of side forms, the sides of the exposed slabs shall be protected immediately to provide a curing treatment equal to that provided for the surface.

b. White burlap-polyethylene sheets. The surface of the pavement shall be entirely covered with the sheeting. The sheeting used shall be such length (or width) that it will extend at least twice the thickness

of the pavement beyond the edges of the slab. The sheeting shall be placed so that the entire surface and both edges of the slab are completely covered. The sheeting shall be placed and weighted to remain in contact with the surface covered, and the covering shall be maintained fully saturated and in position for seven (7) days after the concrete has been placed.

c. Water method. The entire area shall be covered with burlap or other water absorbing material. The material shall be of sufficient thickness to retain water for adequate curing without excessive runoff. The material shall be kept wet at all times and maintained for seven (7) days. When the forms are stripped, the vertical walls shall also be kept moist. It shall be the responsibility of the Contractor to prevent ponding of the curing water on the subbase.

d. Concrete protection for cold weather. Maintain the concrete at a temperature of at least 50°F for a period of 72 hours after placing and at a temperature above freezing for the remainder of the 7-day curing period. The Contractor shall be responsible for the quality and strength of the concrete placed during cold weather; and any concrete damaged shall be removed and replaced at the Contractor's expense.

e. Concrete protection for hot weather. Concrete should be continuous moisture cured for the entire curing period and shall commence as soon as the surfaces are finished and continue for at least 24 hours. However, if moisture curing is not practical beyond 24 hours, the concrete surface shall be protected from drying with application of a liquid membrane-forming curing compound while the surfaces are still damp. Other curing methods may be approved by the RPR.

501-4.14 Removing forms. Unless otherwise specified, forms shall not be removed from freshly placed concrete until it has hardened sufficiently to permit removal without chipping, spalling, or tearing. After the forms have been removed, the sides of the slab shall be cured in accordance with paragraph 501-4.13.

If honeycombed areas are evident when the forms are removed, materials, placement, and consolidation methods must be reviewed and appropriate adjustments made to assure adequate consolidation at the edges of future concrete placements. Honeycombed areas that extend into the slab less than approximately 1 inch, shall be repaired with an approved grout, as directed by the RPR. Honeycombed areas that extend into the slab greater than a depth of 1 inch shall be considered as defective work and shall be removed and replaced in accordance with paragraph 501-4.19.

501-4.15 Saw-cut grooving. If shown on the plans, grooved surfaces shall be provided in accordance with the requirements of Item P-621.

501-4.16 Sealing joints. The joints in the pavement shall be sealed in accordance with Item P-604 and P-605.

501-4.17 Protection of pavement. The Contractor shall protect the pavement and its appurtenances against both public traffic and traffic caused by the Contractor's employees and agents until accepted by the RPR. This shall include watchmen to direct traffic and the erection and maintenance of warning signs, lights, pavement bridges, crossovers, and protection of unsealed joints from intrusion of foreign material, etc. Any damage to the pavement occurring prior to final acceptance shall be repaired or the pavement replaced at the Contractor's expense.

Aggregates, rubble, or other similar construction materials shall not be placed on airfield pavements. Traffic shall be excluded from the new pavement by erecting and maintaining barricades and signs until the concrete is at least seven (7) days old, or for a longer period if directed by the RPR.

In paving intermediate lanes between newly paved pilot lanes, operation of the hauling and paving equipment will be permitted on the new pavement after the pavement has been cured for seven (7) days, the joints are protected, the concrete has attained a minimum field cured flexural strength of 450 psi, and the slab edge is protected.

All new and existing pavement carrying construction traffic or equipment shall be kept clean and spillage of concrete and other materials shall be cleaned up immediately.

Damaged pavements shall be removed and replaced at the Contractor's expense. Slabs shall be removed to the full depth, width, and length of the slab.

501-4.18 Opening to construction traffic. The pavement shall not be opened to traffic until test specimens molded and cured in accordance with ASTM C31 have attained a flexural strength of 450 pounds per square inch when tested in accordance with ASTM C78. If such tests are not conducted, the pavement shall not be opened to traffic until 14 days after the concrete was placed. Prior to opening the pavement to construction traffic, all joints shall either be sealed or protected from damage to the joint edge and intrusion of foreign materials into the joint. As a minimum, backer rod or tape may be used to protect the joints from foreign matter intrusion.

501-4.19 Repair, removal, or replacement of slabs. New pavement slabs that are broken or contain cracks or are otherwise defective or unacceptable as defined by acceptance criteria in paragraph 501-6.6 shall be removed and replaced or repaired, as directed by the RPR, at the Contractor's expense. Spalls along joints shall be repaired as specified. Removal of partial slabs is not permitted. Removal and replacement shall be full depth, shall be full width of the slab, and the limit of removal shall be normal to the paving lane and to each original transverse joint. The RPR will determine whether cracks extend full depth of the pavement and may require cores to be drilled on the crack to determine depth of cracking. Such cores shall be have a diameter of 2 inches to 4 inches, shall be drilled by the Contractor and shall be filled by the Contractor with a well consolidated concrete mixture bonded to the walls of the hole with a bonding agent, using approved procedures. Drilling of cores and refilling holes shall be at no expense to the Owner. Repair of cracks as described in this section shall not be allowed if in the opinion of the RPR the overall condition of the pavement indicates that such repair is unlikely to achieve an acceptable and durable finished pavement. No repair of cracks shall be allowed in any panel that demonstrates segregated aggregate with an absence of coarse aggregate in the upper 1/8 inch of the pavement surface.

a. Shrinkage cracks. Shrinkage cracks which do not exceed one-third of the pavement depth shall be cleaned and either high molecular weight methacrylate (HMWM) applied; or epoxy resin (Type IV, Grade 1) pressure injected using procedures recommended by the manufacturer and approved by the RPR. Sandblasting of the surface may be required following the application of HMWM to restore skid resistance. Care shall be taken to ensure that the crack is not widened during epoxy resin injection. All epoxy resin injection shall take place in the presence of the RPR. Shrinkage cracks which exceed one-third the pavement depth shall be treated as full depth cracks in accordance with paragraphs 501-4.19b and 501-19c.

b. Slabs with cracks through interior areas. Interior area is defined as that area more than 6 inches (150 mm) from either adjacent original transverse joint. The full slab shall be removed and replaced at no cost to the Owner, when there are any full depth cracks, or cracks greater than one-third the pavement depth, that extend into the interior area.

c. Cracks close to and parallel to joints. All full-depth cracks within 6 inches either side of the joint and essentially parallel to the original joints, shall be treated as follows.

(1) Full depth cracks and original joint not cracked. The full-depth crack shall be treated as the new joint and the original joint filled with an epoxy resin.

i. Full-depth crack. The joint sealant reservoir for the crack shall be formed by sawing to a depth of 3/4 inches (19 mm), ±1/16 inch, and to a width of 5/8 inch, ±1/8 inch. The crack shall be sawed with equipment specially designed to follow random cracks. Any equipment or procedure which causes raveling or spalling along the crack shall be modified or replaced to prevent raveling or spalling. The joint shall be sealed with sealant in accordance with P-605 or as directed by the RPR.

ii. Original joint. If the original joint sealant reservoir has been sawed out, the reservoir and as much of the lower saw cut as possible shall be filled with epoxy resin, Type IV, Grade 2, thoroughly tooled into the void using approved procedures.

If only the original narrow saw cut has been made, it shall be cleaned and pressure injected with epoxy resin, Type IV, Grade 1, using approved procedures.

Where a parallel crack goes part way across paving lane and then intersects and follows the original joint which is cracked only for the remained of the width, it shall be treated as specified above for a parallel crack, and the cracked original joint shall be prepared and sealed as originally designed.

(2) Full depth cracks and original joint cracked. If there is any place in the lane width where a parallel crack and a cracked portion of the original joint overlap, the entire slab containing the crack shall be removed and replaced.

d. Removal and replacement of full slabs. Make a full depth cut perpendicular to the slab surface along all edges of the slab with a concrete saw cutting any dowels or tie-bars. Remove damaged slab protecting adjacent pavement from damage. Damage to adjacent slabs may result in removal of additional slabs as directed by the RPR at the Contractor's expense.

The underlying material shall be repaired, re-compacted and shaped to grade.

Dowels of the size and spacing specified for other joints in similar pavement on the project shall be installed along all four (4) edges of the new slab in accordance with paragraph 501-4.10d.

Placement of concrete shall be as specified for original construction. The joints around the new slab shall be prepared and sealed as specified for original construction.

e. Spalls along joints.

(1) Spalls less than one inch wide and less than the depth of the joint sealant reservoir, shall be filled with joint sealant material.

(2) Spalls larger than one inch and/or deeper than the joint reservoir, but less than ½ the slab depth, and less than 25% of the length of the adjacent joint shall be repaired as follows:

i. Make a vertical saw cut at least one inch outside the spalled area and to a depth of at least 2 inches (50 mm). Saw cuts shall be straight lines forming rectangular areas surrounding the spalled area.

ii. Remove unsound concrete and at least 1/2 inch of visually sound concrete between the saw cut and the joint or crack with a light chipping hammer.

iii. Clean cavity with high-pressure water jets supplemented with compressed air as needed to remove all loose material.

iv. Apply a prime coat of epoxy resin, Type III, Grade I, to the dry, cleaned surface of all sides and bottom of the cavity, except any joint face.

v. Fill the cavity with low slump concrete or mortar or with epoxy resin concrete or mortar.

vi. An insert or other bond-breaking medium shall be used to prevent bond at all joint faces.

vii. A reservoir for the joint sealant shall be sawed to the dimensions required for other joints, or as required to be routed for cracks. The reservoir shall be thoroughly cleaned and sealed with the sealer specified for the joints.

(3) Spalls deeper than 1/2 of the slab depth or spalls longer than 25% of the adjacent joint require replacement of the entire slab.

f. Diamond grinding of Concrete surfaces. Diamond grinding shall be completed prior to pavement grooving. Diamond grinding of the hardened concrete should not be performed until the concrete is at least 14 days old and has achieved full minimum strength. Equipment that causes ravels, aggregate fractures, spalls or disturbance to the joints will not be permitted. The depth of diamond grinding shall not

exceed 1/2 inch and all areas in which diamond grinding has been performed will be subject to the final pavement thickness tolerances specified.

Diamond grinding shall be performed with a machine specifically designed for diamond grinding capable of cutting a path at least 3 feet wide. The saw blades shall be 1/8-inch wide with sufficient number of flush cut blades that create grooves between 0.090 and 0.130 inches wide; and peaks and ridges approximately 1/32 inch higher than the bottom of the grinding cut. The Contractor shall determine the number and type of blades based on the hardness of the aggregate. Contractor shall demonstrate to the RPR that the grinding equipment will produce satisfactory results prior to making corrections to surfaces.

Grinding will be tapered in all directions to provide smooth transitions to areas not requiring grinding. The slurry resulting from the grinding operation shall be continuously removed and the pavement left in a clean condition. All grinding shall be at the expense of the Contractor.

CONTRACTOR QUALITY CONTROL (CQC)

501-5.1 Quality control program. The Contractor shall develop a Quality Control Program in accordance with Item C-100. No partial payment will be made for materials that are subject to specific quality control requirements without an approved quality control program.

501-5.2 Contractor Quality Control (CQC). The Contractor shall provide or contract for testing facilities in accordance with Item C-100. The RPR shall be permitted unrestricted access to inspect the Contractor's QC facilities and witness QC activities. The RPR will advise the Contractor in writing of any noted deficiencies concerning the QC facility, equipment, supplies, or testing personnel and procedures. When the deficiencies are serious enough to be adversely affecting the test results, the incorporation of the materials into the work shall be suspended immediately and will not be permitted to resume until the deficiencies are satisfactorily corrected.

501-5.3 Contractor QC testing. The Contractor shall perform all QC tests necessary to control the production and construction processes applicable to this specification and as set forth in the CQCP. The testing program shall include, but not necessarily be limited to, tests for aggregate gradation, aggregate moisture content, slump, and air content. A QC Testing Plan shall be developed and approved by the RPR as part of the CQCP.

The RPR may at any time, notwithstanding previous plant acceptance, reject and require the Contractor to dispose of any batch of concrete mixture which is rendered unfit for use due to contamination, segregation, or improper slump. Such rejection may be based on only visual inspection. In the event of such rejection, the Contractor may take a representative sample of the rejected material in the presence of the RPR, and if it can be demonstrated in the laboratory, in the presence of the RPR, that such material was erroneously rejected, payment will be made for the material at the contract unit price**.**

a. Fine aggregate.

(1) Gradation. A sieve analysis shall be made at least twice daily in accordance with ASTM C136 from randomly sampled material taken from the discharge gate of storage bins or from the conveyor belt.

(2) Moisture content. If an electric moisture meter is used, at least two direct measurements of moisture content shall be made per week to check the calibration. If direct measurements are made in lieu of using an electric meter, two tests shall be made per day. Tests shall be made in accordance with ASTM C70 or ASTM C566.

(3) Deleterious substances. Fine aggregate as delivered to the mixer shall be tested for deleterious substances in fine aggregate for concrete as specified in paragraph 501-2.1b, prior to production of the control strip, and a minimum of every 30-days during production or more frequently as necessary to control deleterious substances.

b. Coarse Aggregate.

(1) Gradation. A sieve analysis shall be made at least twice daily for each size of aggregate. Tests shall be made in accordance with ASTM C136 from randomly sampled material taken from the discharge gate of storage bins or from the conveyor belt.

(2) Moisture content. If an electric moisture meter is used, at least two direct measurements of moisture content shall be made per week to check the calibration. If direct measurements are made in lieu of using an electric meter, two tests shall be made per day. Tests shall be made in accordance with ASTM C566.

(3) Deleterious substances. Coarse aggregate as delivered to the mixer shall be tested for deleterious substances in coarse aggregate for concrete as specified in paragraph 501-2.1c, prior to production of the control strip, and a minimum of every 30-days during production or more frequently as necessary to control deleterious substances.

c. Slump. One test shall be made for each sublot. Slump tests shall be performed in accordance with ASTM C143 from material randomly sampled from material discharged from trucks at the paving site. Material samples shall be taken in accordance with ASTM C172.

d. Air content. One test shall be made for each sublot. Air content tests shall be performed in accordance with ASTM C231 for gravel and stone coarse aggregate and ASTM C173 for slag or other porous coarse aggregate, from material randomly sampled from trucks at the paving site. Material samples shall be taken in accordance with ASTM C172.

e. Unit weight and Yield. One test shall be made for each sublot. Unit weight and yield tests shall be in accordance with ASTM C138. The samples shall be taken in accordance with ASTM C172 and at the same time as the air content tests.

f. Temperatures. Temperatures shall be checked at least four times per lot at the job site in accordance with ASTM C1064.

g. Smoothness for Contractor Quality Control.

The Contractor shall perform smoothness testing in transverse and longitudinal directions daily to verify that the construction processes are producing pavement with variances less than ¼ inch in 12 feet, identifying areas that may pond water which could lead to hydroplaning of aircraft. If the smoothness criteria is not met, appropriate changes and corrections to the construction process shall be made by the Contractor before construction continues

The Contractor may use a 12-foot "straightedge, a rolling inclinometer meeting the requirements of ASTM E2133 or rolling external reference device that can simulate a 12-foot straightedge approved by the RPR. Straight-edge testing shall start with one-half the length of the straightedge at the edge of pavement section being tested and then moved ahead one-half the length of the straightedge for each successive measurement. Testing shall be continuous across all joints. The surface irregularity shall be determined by placing the freestanding (unleveled) straightedge on the pavement surface and allowing it to rest upon the two highest spots covered by its length, and measuring the maximum gap between the straightedge and the pavement surface in the area between the two high points. If the rolling inclinometer or external reference device is used, the data may be evaluated using either the FAA profile program, ProFAA, or FHWA profile program ProVal, using the 12-foot straightedge simulation function.

Smoothness readings shall not be made across grade changes or cross slope transitions. The transition between new and existing pavement shall be evaluated separately for conformance with the plans.

(1) Transverse measurements. Transverse measurements shall be taken for each day's production placed. Transverse measurements shall be taken perpendicular to the pavement centerline each 50 feet (15 m) or more often as determined by the RPR. The joint between lanes shall be tested separately to facilitate smoothness between lanes.

(2) Longitudinal measurements. Longitudinal measurements shall be taken for each day's production placed. Longitudinal tests shall be parallel to the centerline of paving; at the center of paving lanes when widths of paving lanes are less than 20 feet (6 m); and at the third points of paving lanes when widths of paving lanes are 20 ft (6 m) or greater. When placement abuts previously placed material the first measurement shall start with one half the length of the straight edge on the previously placed material.

Deviations on the final surface course in either the transverse or longitudinal direction that will trap water greater than 1/4 inch (6 mm) shall be corrected with diamond grinding per paragraph 501-4.19f or by removing and replacing the surface course to full depth. Grinding shall be tapered in all directions to provide smooth transitions to areas not requiring grinding. All areas in which diamond grinding has been performed shall be subject to the final pavement thickness tolerances specified in paragraph 501-6.6.

Control charts shall be kept to show area of each day's placement and the percentage of corrective grinding required. Corrections to production and placement shall be initiated when corrective grinding is required. If the Contractor's machines and/or methods produce significant areas that need corrective actions in excess of 10 percent of a day's production, production shall be stopped until corrective measures are implemented by the Contractor.

h. Grade. Grade will be evaluated prior to and after placement of the concrete surface.

Measurements will be taken at appropriate gradelines (as a minimum at center and edges of paving lane) and longitudinal spacing as shown on cross-sections and plans. The final surface of the pavement will not vary from the gradeline elevations and cross-sections shown on the plans by more than 1/2 inch (12 mm) vertically and 0.1 feet laterally. The documentation will be provided by the Contractor to the RPR within 48 hours.

Areas with humps or depression that that exceed grade or smoothness and that retain water on the surface must be ground off provided the course thickness after grinding is not more than 1/2 inch (12 mm) less than the thickness specified on the plans. If these areas cannot be corrected with grinding then the slabs that are retaining water must be removed and replaced in accordance with paragraph 501-4.19d. Grinding shall be in accordance with paragraph 501-4.19f. All corrections will be at the Contractors expense.

501-5.4 Control charts. The Contractor shall maintain linear control charts for fine and coarse aggregate gradation, slump, and air content. The Contractor shall also maintain a control chart plotting the coarseness factor/workability factor from the combined gradations in accordance with paragraph 501-2.1d.

Control charts shall be posted in a location satisfactory to the RPR and shall be kept up to date at all times. As a minimum, the control charts shall identify the project number, the contract item number, the test number, each test parameter, the Action and suspension Limits, or Specification limits, applicable to each test parameter, and the Contractor's test results. The Contractor shall use the control charts as part of a process control system for identifying potential problems and assignable causes before they occur. If the Contractor's projected data during production indicates a potential problem and the Contractor is not taking satisfactory corrective action, the RPR may halt production or acceptance of the material.

a. Fine and coarse aggregate gradation. The Contractor shall record the running average of the last five gradation tests for each control sieve on linear control charts. Superimposed on the control charts

shall be the action and suspension limits. Gradation tests shall be performed by the Contractor per ASTM C136. The Contractor shall take at least two samples per lot to check the final gradation. Sampling shall be per ASTM D75 from the flowing aggregate stream or conveyor belt.

b. Slump and air content. The Contractor shall maintain linear control charts both for individual measurements and range (that is, difference between highest and lowest measurements) for slump and air content in accordance with the following Action and Suspension Limits.

c. Combined gradation. The Contractor shall maintain a control chart plotting the coarseness factor and workability factor on a chart in accordance with paragraph 501-2.1d.

Control Chart Limits[1]

Control Parameter	Individual Measurements	
	Action Limit	Suspension Limit
Gradation[2]	*[3]	*[3]
Coarseness Factor (CF)	±3.5	±5
Workability Factor (WF)	±2	±3
Slump	+0.5 to -1 inch	+1 to -1.5 inch
Air Content	±1.5%	±2.0%

[1] Control charts shall developed and maintained for each control parameter indicated.

[2] Control charts shall be developed and maintained for each sieve size.

[3] Action and suspension limits shall be determined by the Contractor.

501-5.5 Corrective action at Suspension Limit. The CQCP shall indicate that appropriate action shall be taken when the process is believed to be out of control. The CQCP shall detail what action will be taken to bring the process into control and shall contain sets of rules to gauge when a process is out of control. As a minimum, a process shall be deemed out of control and corrective action taken if any one of the following conditions exists.

a. Fine and coarse aggregate gradation. When two consecutive averages of five tests are outside of the suspension limits, immediate steps, including a halt to production, shall be taken to correct the grading.

b. Coarseness and Workability factor. When the CF or WF reaches the applicable suspension limits, the Contractor, immediate steps, including a halt to production, shall be taken to correct the CF and WF.

c. Fine and coarse aggregate moisture content. Whenever the moisture content of the fine or coarse aggregate changes by more than 0.5%, the scale settings for the aggregate batcher and water batcher shall be adjusted.

d. Slump. The Contractor shall halt production and make appropriate adjustments whenever:

(1) one point falls outside the Suspension Limit line for individual measurements

OR

(2) two points in a row fall outside the Action Limit line for individual measurements.

e. Air content. The Contractor shall halt production and adjust the amount of air-entraining admixture whenever:

(1) one point falls outside the Suspension Limit line for individual measurements

OR

(2) two points in a row fall outside the Action Limit line for individual measurements.

MATERIAL ACCEPTANCE

501-6.1 Quality Assurance (QA) Acceptance sampling and testing. All acceptance sampling and testing necessary to determine conformance with the requirements specified in this section, with the exception of coring for thickness determination, will be performed by the RPR. The Contractor shall provide adequate facilities for the initial curing of beams. The Contractor shall bear the cost of providing initial curing facilities and coring and filling operations, per paragraph 501-6.5b(1).

The samples will be transported while in the molds. The curing, except for the initial cure period, will be accomplished using the immersion in saturated lime water method. During the 24 hours after molding, the temperature immediately adjacent to the specimens must be maintained in the range of 60° to 80°F (16° to 27°C), and loss of moisture from the specimens must be prevented. The specimens may be stored in tightly constructed wooden boxes, damp sand pits, temporary buildings at construction sites, under wet burlap in favorable weather, or in heavyweight closed plastic bags, or using other suitable methods, provided the temperature and moisture loss requirements are met.

501-6.2 Quality Assurance (QA) testing laboratory. Quality assurance testing organizations performing these acceptance tests will be accredited in accordance with ASTM C1077. The quality assurance laboratory accreditation must be current and listed on the accrediting authority's website. All test methods required for acceptance sampling and testing must be listed on the lab accreditation. A copy of the laboratory's current accreditation and accredited test methods will be submitted to the RPR prior to start of construction.

501-6.3 Lot size. Concrete will be accepted for strength and thickness on a lot basis. A lot will consist of a day's production not to exceed 4,000 square yard**s**. Each lot will be divided into approximately equal sublots with individual sublots between 400 to 600 cubic yards. Where three sublots are produced, they will constitute a lot. Where one or two sublots are produced, they will be incorporated into the previous or next lot. Where more than one plant is simultaneously producing concrete for the job, the lot sizes will apply separately for each plant.

501-6.4 Partial lots. When operational conditions cause a lot to be terminated before the specified number of tests have been made for the lot or for overages or minor placements to be considered as partial lots, the following procedure will be used to adjust the lot size and the number of tests for the lot.

Where three sublots have been produced, they will constitute a lot. Where one or two sublots have been produced, they will be incorporated into the next lot or the previous lot and the total number of sublots will be used in the acceptance criteria calculation, that is, n=5 or n=6.

501-6.5 Acceptance Sampling and Testing.

a. Strength.

(1) Sampling. One sample will be taken for each sublot from the concrete delivered to the job site. Sampling locations will be determined by the RPR in accordance with random sampling procedures contained in ASTM D3665. The concrete will be sampled in accordance with ASTM C172.

(2) Test Specimens. The RPR will be responsible for the casting, initial curing, transportation, and curing of specimens in accordance with ASTM C31. Two (2) specimens will be made from each sample and slump, air content, unit weight, and temperature tests will be conducted for each set of strength specimens. Within 24 to 48 hours, the samples will be transported from the field to the laboratory while in the molds. Samples will be cured in saturated lime water.

The strength of each specimen will be determined in accordance with ASTM C78. The strength for each sublot will be computed by averaging the results of the two test specimens representing that sublot.

(3) Acceptance. Acceptance of pavement for strength will be determined by the RPR in accordance with paragraph 501-6.6b(1). All individual strength tests within a lot will be checked for outliers in accordance with ASTM E178, at a significance level of 5%. Outliers will be discarded and the remaining test values will be used to determine acceptance in accordance with paragraph 501-6.5b.

b. Pavement thickness.

(1) Sampling. One core will be taken by the Contractor for each sublot in the presence of the RPR. Sampling locations will be determined by the RPR in accordance with random sampling procedures contained in ASTM D3665. Areas, such as thickened edges, with planned variable thickness, will be excluded from sample locations.

Cores shall be a minimum 4 inch in diameter neatly cut with a core drill. The Contractor will furnish all tools, labor, and materials for cutting samples and filling the cored hole. Core holes will be filled by the Contractor with a non-shrink grout approved by the RPR within one day after sampling.

(2) Testing. The thickness of the cores will be determined by the RPR by the average caliper measurement in accordance with ASTM C174. Each core shall be photographed and the photograph included with the test report.

(3) Acceptance. Acceptance of pavement for thickness will be determined by the RPR in accordance with paragraph 501-6.6.

501-6.6 Acceptance criteria.

a. General. Acceptance will be based on the following characteristics of the completed pavement discussed in paragraph 501-6.5b:

(1) Strength

(2) Thickness

(3) Grade

(4) Profilograph smoothness Not used.

(5) Adjustments for repairs

Acceptance for strength, thickness, and grade, will be based on the criteria contained in accordance with paragraph 501-6.6b(1), 501-6.6b(2), and 501-6.6b(3), respectively. Acceptance for profilograph smoothness will be based on the criteria contained in paragraph 501-6.6b(4).

Production quality must achieve 90 PWL or higher to receive full payment.

Strength and thickness will be evaluated for acceptance on a lot basis using the method of estimating PWL. Production quality must achieve 90 PWL or higher to receive full pavement. The PWL will be determined in accordance with procedures specified in Item C-110.

The lower specification tolerance limit (L) for strength and thickness will be:

Lower Specification Tolerance Limit (L)

Strength	0.93 × strength specified in paragraph 501-3.3
Thickness	Lot Plan Thickness in inches, - 0.50 in

b. Acceptance criteria.

1) Strength. If the PWL of the lot equals or exceeds 90%, the lot will be acceptable. Acceptance and payment for the lot will be determined in accordance with paragraph 501-8.1.

(**2) Thickness.** If the PWL of the lot equals or exceeds 90%, the lot will be acceptable. Acceptance and payment for the lot will be determined in accordance with paragraph 501-8.1.

(3) Grade. The final finished surface of the pavement of the completed project will not vary from the gradeline elevations and cross-sections shown on the plans by more than 1/2 inch vertically or 0.1 feet (30 mm) laterally. The documentation, stamped and signed by a licensed surveyor shall be in accordance with paragraph 501-5.3h. Payment for sublots that do not meet grade for over 25% of the sublot shall reduced by 5% and not be more than 95%.

(4) Profilograph roughness for QA Acceptance. The final profilograph shall be the full length of the project to facilitate testing of roughness between lots. The Contractor, in the presence of the RPR shall perform a profilograph roughness test on the completed project with a profilograph meeting the requirements of ASTM E1274 or a Class I inertial profiler meeting ASTM E950. Data and results shall be provided within 48 hrs of profilograph roughness tests.

The pavement shall have an average profile index less than 15 inches per mile per 1/10 mile. The equipment shall utilize electronic recording and automatic computerized reduction of data to indicate "must grind" bumps and the Profile Index for the pavement using a 0.2-inch blanking band. The bump template must span one inch with an offset of 0.4 inches. The profilograph must be calibrated prior to use and operated by a factory or State DOT approved, trained operator. Profilograms shall be recorded on a longitudinal scale of one inch equals 25 feet and a vertical scale of one inch equals one inch. Profilograph shall be performed one foot right and left of project centerline and 15 feet right and left of project centerline. Any areas that indicate "must grind" shall be corrected with diamond grinding per paragraph 501-4.19f or by removing and replacing full depth of surface course. as directed by the RPR. Where corrections are necessary, a second profilograph run shall be performed to verify that the corrections produced an average profile index of 15 inches per mile per 1/10 mile or less.

(5) Adjustments for repair. Sublots with spall repairs, crack repairs, or partial panel replacement, will be limited to no more than 95% payment.

(6) Adjustment for grinding. For sublots with grinding over 25% of a sublot, payment will be reduced 5%.

METHOD OF MEASUREMENT

501-7.1 Concrete pavement shall be measured by the number of square yards of plain and reinforced pavement as specified in-place, completed and accepted. For pavement identified with a ± thickness (inches), the Contractor shall review the geotechnical information and proposed plan and profiles within the contract documents to determine the required thickness per pay item as it may vary from the specified thickness. Additional thickness measurements will not be performed during construction.

BASIS OF PAYMENT

501-8.1 Payment. Payment for concrete pavement meeting all acceptance criteria as specified in paragraph 501-6.6. Acceptance Criteria shall be based on results of strength, smoothness, and thickness tests. Payment for acceptable lots of concrete pavement shall be adjusted in accordance with paragraph 501-8.1a for strength and thickness; 501-8.1b for repairs; 501-8.1c for grinding; and 501-8.1d for smoothness, subject to the limitation that:

The total project payment for concrete pavement shall not exceed 100 percent of the product of the contract unit price and the total number of square yards of concrete pavement used in the accepted work (See Note 1 under the Price Adjustment Schedule table below).

Payment shall be full compensation for all labor, materials, tools, equipment, and incidentals required to complete the work as specified herein and on the drawings. No additional compensation shall be provided for pavement identified with a ± thickness (inches) and the Contractor shall review the geotechnical information and proposed plan and profiles within the contract documents to determine the required thickness per pay item as it may vary from the specified thickness.

Payment for all labor, materials, tools, equipment, and incidentals required to complete the work associated with the bond breaker shall be subsidiary to the below pay items. No additional compensation shall be provided for the bond breaker.

a. Basis of adjusted payment. The pay factor for each individual lot shall be calculated in accordance with the Price Adjustment Schedule table below. A pay factor shall be calculated for both strength and thickness. The lot pay factor shall be the higher of the two values when calculations for both strength and thickness are 100% or higher. The lot pay factor shall be the product of the two values when only one of the calculations for either strength or thickness is 100% or higher. The lot pay factor shall be the lower of the two values when calculations for both strength and thickness are less than 100%.

Price Adjustment Schedule[1]

Percentage of Materials Within Specification Limits (PWL)	Lot Pay Factor (Percent of Contract Unit Price)
96 – 100	106
90 – 95	PWL + 10
75 – 90	0.5 PWL + 55
55 – 74	1.4 PWL – 12
Below 55	Reject[2]

[1] Although it is theoretically possible to achieve a pay factor of 106% for each lot, actual payment in excess of 100% shall be subject to the total project payment limitation specified in paragraph 501-8.1.

[2] The lot shall be removed and replaced unless, after receipt of FAA concurrence, the Owner and Contractor agree in writing that the lot will remain; the lot paid at 50% of the contract unit price; and the total project payment limitation reduced by the amount withheld for that lot.

For each lot accepted, the adjusted contract unit price shall be the product of the lot pay factor for the lot and the contract unit price. Payment shall be subject to the total project payment limitation specified in paragraph 501-8.1. Payment in excess of 100% for accepted lots of concrete pavement shall be used to offset payment for accepted lots of concrete pavement that achieve a lot pay factor less than 100%; except for rejected lots which remain in place and/or sublots with adjustments for repairs.

b. Adjusted payment for repairs. The PWL lot pay factor shall be reduced by 5% and be no higher than 95% for sublots which contain repairs in accordance with paragraph 501-4.19 on more than 20% of the slabs within the sublot. Payment factors greater than 100 percent for the strength and thickness cannot be used to offset adjustments for repairs.

c. Adjusted payment for grinding. The PWL lot pay factor shall be reduced by 5% and be no higher than 95% for sublots with grinding over 25% of a sublot.

d. Profilograph Roughness. The Contractor will receive full payment when the profilograph average profile index is in accordance with paragraph 501-6.6b(4). When the final average profile index for the entire length of pavement does not exceed 15 inches per mile per 1/10 mile, payment will be made at the contract unit price for the completed pavement.

e. Payment. Payment shall be made under:

Item P-501-1	6" Portland Concrete Pavement - per square yard
Item P-501-2	6" Reinforced Portland Cement Concrete Pavement – per square yard
Item P-501-3	15" Portland Concrete Pavement - per square yard
Item P-501-4	15" Reinforced Portland Cement Concrete Pavement – per square yard
Item P-501-5	±17" Portland Concrete Pavement - per square yard
Item P-501-6	±17" Reinforced Portland Cement Concrete Pavement – per square yard

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM A184	Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A704	Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement
ASTM A706	Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
ASTM A775	Standard Specification for Epoxy-Coated Steel Reinforcing Bars
ASTM A884	Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement
ASTM A934	Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars
ASTM A996	Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement
ASTM A1035	Standard Specification for Deformed and Plain, Low-Carbon, Chromium, Steel Bars for Concrete Reinforcement
ASTM A1064	Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete

ASTM A1078	Standard Specification for Epoxy-Coated Steel Dowels for Concrete Pavement
ASTM C29	Standard Test Method for Bulk Density (“Unit Weight”) and Voids in Aggregate
ASTM C31	Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C33	Standard Specification for Concrete Aggregates
ASTM C39	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C70	Standard Test Method for Surface Moisture in Fine Aggregate
ASTM C78	Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)
ASTM C88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C94	Standard Specification for Ready-Mixed Concrete
ASTM C114	Standard Test Methods for Chemical Analysis of Hydraulic Cement
ASTM C117	Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C123	Standard Test Method for Lightweight Particles in Aggregate
ASTM C136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C138	Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
ASTM C142	Standard Test Method for Clay Lumps and Friable Particles in Aggregates
ASTM C143	Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C150	Standard Specification for Portland Cement
ASTM C171	Standard Specification for Sheet Materials for Curing Concrete
ASTM C172	Standard Practice for Sampling Freshly Mixed Concrete
ASTM C173	Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method
ASTM C174	Standard Test Method for Measuring Thickness of Concrete Elements Using Drilled Concrete Cores
ASTM C227	Standard Test Method for Potential Alkali Reactivity of Cement-Aggregate Combinations (Mortar-Bar Method)

ASTM C231	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C260	Standard Specification for Air-Entraining Admixtures for Concrete
ASTM C295	Standard Guide for Petrographic Examination of Aggregates for Concrete
ASTM C309	Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C311	Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland Cement Concrete
ASTM C494	Standard Specification for Chemical Admixtures for Concrete
ASTM C566	Standard Test Method for Total Evaporable Moisture Content of Aggregates by Drying
ASTM C595	Standard Specification for Blended Hydraulic Cements
ASTM C618	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C642	Standard Test Method for Density, Absorption, and Voids in Hardened Concrete
ASTM C666	Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
ASTM C685	Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing
ASTM C881	Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete
ASTM C989	Standard Specification for Slag Cement for Use in Concrete and Mortars
ASTM C1017	Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete
ASTM C1064	Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete
ASTM C1077	Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM C1157	Standard Performance Specification for Hydraulic Cement
ASTM C1260	Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
ASTM C1365	Standard Test Method for Determination of the Proportion of Phases in Portland Cement and Portland-Cement Clinker Using X-Ray Powder Diffraction Analysis
ASTM C1567	Standard Test Method for Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method)

ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D75	Standard Practice for Sampling Aggregates
ASTM D1751	Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
ASTM D1752	Standard Specification for Preformed Sponge Rubber and Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction
ASTM D2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D4791	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM E178	Standard Practice for Dealing with Outlying Observations
ASTM E1274	Standard Test Method for Measuring Pavement Roughness Using a Profilograph
ASTM E2133	Standard Test Method for Using a Rolling Inclinometer to Measure Longitudinal and Transverse Profiles of a Traveled Surface

American Concrete Institute (ACI)

ACI 305R	Guide to Hot Weather Concreting
ACI 306R	Guide to Cold Weather Concreting
ACI 309R	Guide for Consolidation of Concrete

Advisory Circulars (AC)

AC 150/5320-6	Airport Pavement Design and Evaluation

Federal Highway Administration (FHWA)

HIPERPAV 3, version 3.2

Portland Concrete Association (PCA)

PCA	Design and Control of Concrete Mixtures, 16th Edition

U.S. Army Corps of Engineers (USACE) Concrete Research Division (CRD)

CRD C662	Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials, Lithium Nitrate Admixture and Aggregate (Accelerated Mortar-Bar Method)

United States Air Force Engineering Technical Letter (ETL)

ETL 97-5	Proportioning Concrete Mixtures with Graded Aggregates for Rigid Airfield Pavements

END ITEM P-501

ITEM P-603 EMULSIFIED ASPHALT TACK COAT

DESCRIPTION

603-1.1 This item shall consist of preparing and treating an asphalt or concrete surface with asphalt material in accordance with these specifications and in reasonably close conformity to the lines shown on the plans.

MATERIALS

603-2.1 Asphalt materials. The asphalt material shall be an emulsified asphalt as specified in ASTM D3628 as an asphalt application for tack coat appropriate to local conditions. The emulsified asphalt shall not be diluted. The Contractor shall provide a copy of the manufacturer's Certificate of Analysis (COA) for the asphalt material to the Resident Project Representative (RPR) before the asphalt material is applied for review and acceptance. The furnishing of COA for the asphalt material shall not be interpreted as a basis for final acceptance. The manufacturer's COA may be subject to verification by testing the material delivered for use on the project.

CONSTRUCTION METHODS

603-3.1 Weather limitations. The tack coat shall be applied only when the existing surface is dry and the atmospheric temperature is 50°F or above; the temperature has not been below 35°F the 12 hours prior to application; and when the weather is not foggy or rainy. The temperature requirements may be waived when directed by the RPR.

603-3.2 Equipment. The Contractor shall provide equipment for heating and applying the emulsified asphalt material. The emulsion shall be applied with a manufacturer-approved computer rate-controlled asphalt distributor. The equipment shall be in good working order and contain no contaminants or diluents in the tank. Spray bar tips must be clean, free of burrs, and of a size to maintain an even distribution of the emulsion. Any type of tip or pressure source is suitable that will maintain predetermined flow rates and constant pressure during the application process with application speeds under eight (8) miles per hour or seven (700) feet per minute.

The equipment will be tested under pressure for leaks and to ensure proper set-up before use to verify truck set-up (via a test-shot area), including but not limited to, nozzle tip size appropriate for application, spray-bar height and pressure and pump speed, evidence of triple-overlap spray pattern, lack of leaks, and any other factors relevant to ensure the truck is in good working order before use.

The distributor truck shall be equipped with a minimum 12-foot spreader spray bar with individual nozzle control with computer-controlled application rates. The distributor truck shall have an easily accessible thermometer that constantly monitors the temperature of the emulsion, and have an operable mechanical tank gauge that can be used to cross-check the computer accuracy. If the distributor is not equipped with an operable quick shutoff valve, the prime operations shall be started and stopped on building paper.

The distributor truck shall be equipped to effectively heat and mix the material to the required temperature prior to application as required. Heating and mixing shall be done in accordance with the manufacturer's recommendations. Do not overheat or over mix the material.

The distributor shall be equipped with a hand sprayer.

Asphalt distributors must be calibrated annually in accordance with ASTM D2995. The Contractor must furnish a current calibration certification for the asphalt distributor truck from any State or other agency as approved by the RPR.

A power broom and/or power blower suitable for cleaning the surfaces to which the asphalt tack coat is to be applied shall be provided.

603-3.3 Application of emulsified asphalt material. The emulsified asphalt shall not be diluted. Immediately before applying the emulsified asphalt tack coat, the full width of surface to be treated shall be swept with a power broom and/or power blower to remove all loose dirt and other objectionable material.

The emulsified asphalt material shall be uniformly applied with an asphalt distributor at the rates appropriate for the conditions and surface specified in the table below. The type of asphalt material and application rate shall be approved by the RPR prior to application.

Emulsified Asphalt

Surface Type	Residual Rate, gal/SY	Emulsion Application Bar Rate, gal/SY
New asphalt	0.02-0.05	0.03-0.07
Existing asphalt	0.04-0.07	0.06-0.11
Milled Surface	0.04-0.08	0.06-0.12
Concrete	0.03-0.05	0.05-0.08

After application of the tack coat, the surface shall be allowed to cure without being disturbed for the period of time necessary to permit drying and setting of the tack coat. This period shall be determined by the RPR. The Contractor shall protect the tack coat and maintain the surface until the next course has been placed. When the tack coat has been disturbed by the Contractor, tack coat shall be reapplied at the Contractor's expense.

603-3.4 Freight and waybills The Contractor shall submit waybills and delivery tickets, during progress of the work. Before the final statement is allowed, file with the RPR certified waybills and certified delivery tickets for all emulsified asphalt materials used in the construction of the pavement covered by the contract. Do not remove emulsified asphalt material from storage until the initial outage and temperature measurements have been taken. The delivery or storage units will not be released until the final outage has been taken.

METHOD OF MEASUREMENT

603-4.1 The emulsified asphalt material for tack coat shall be measured by the gallo**n**. Volume shall be corrected to the volume at 60°F in accordance with ASTM D1250. The emulsified asphalt material paid for will be the measured quantities used in the accepted work, provided that the measured quantities are not 10% over the specified application rate. Any amount of emulsified asphalt material more than 10% over the specified application rate for each application will be deducted from the measured quantities, except for irregular areas where hand spraying of the emulsified asphalt material is necessary. Water added to emulsified asphalt will not be measured for payment.

BASIS OF PAYMENT

603.5-1 Payment shall be made at the contract unit price per gallon emulsified asphalt material. This price shall be full compensation for furnishing all materials, for all preparation, delivery, and application of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-603-1	Emulsified Asphalt Tack Coat – per gallon

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM D1250	Standard Guide for Use of the Petroleum Measurement Tables
ASTM D2995	Standard Practice for Estimating Application Rate and Residual Application Rate of Bituminous Distributors
ASTM D3628	Standard Practice for Selection and Use of Emulsified Asphalts

END ITEM P-603

ITEM P-604 COMPRESSION JOINT SEALS FOR CONCRETE PAVEMENTS

DESCRIPTION

604-1.1 This item shall consist of preformed polychloroprene compression seals used for sealing joints of rigid pavements.

MATERIALS

604-2.1 Compression seals. Compression joint seal materials shall be a vulcanized elastomeric compound using polychloroprene as the only base polymer. The material and the manufactured seal shall conform to ASTM D2628.

The joint seal shall be a labyrinth type seal. The uncompressed depth of the face of the compression seal (that is to be bonded to the joint wall) shall be greater than the uncompressed width of the seal, except that for seals one inch or greater in width, the depth need be only one inch or greater. The actual width of the uncompressed seal shall be as recommended by the joint seal manufacturer for the type and width of joints as shown on the plans. The tolerance on the seal shall be as indicated in the plans.

The Contractor shall provide a copy of the manufacturer's Certificate of Analysis (COA) for the joint seal material delivered to the project. The COA shall be provided to and approved by the RPR before the material is installed. The furnishing of the vendor's certified test report shall not be interpreted as a basis for final acceptance. The manufacturer's COA may be subject to verification by testing the material delivered for use on the project.

Materials delivered to the job site shall be inspected for defects, unloaded, and stored with a minimum of handling to avoid damage. Storage facilities shall be provided at the job site to protect materials from weather and maintain materials at temperatures recommended by the manufacturer.

Representative sample of joint seal material will be sampled and retained by the RPR for possible testing.

604-2.2 Lubricant/adhesive. Lubricant/adhesive used for the compression elastomeric joint seal shall be a one-component compound conforming to ASTM D2835.

CONSTRUCTION METHODS

604-3.1 Equipment. Machines, tools, and equipment used in the performance of the work required by this section shall be approved by the RPR before the work starts and shall be maintained by the Contractor in satisfactory condition at all times.

a. Joint cleaning equipment.

(**1) Concrete saw.** A self-propelled power saw with water-cooled diamond saw blades shall be provided for cutting joints to the depths and widths specified and for removing filler, existing old joint seal or other material embedded in the joints or adhered to the joint faces.

(2) Waterblasting equipment. Waterblasting equipment shall include a trailer-mounted water tank, pumps, high-pressure hose, a wand with safety release cutoff controls, nozzle, and auxiliary water resupply equipment. The water tank and auxiliary water resupply equipment shall be of sufficient capacity to permit continuous operations. The pumps, hoses, wand, and nozzle shall be of sufficient capacity to permit the cleaning of both walls of the joint and the pavement surface for a width of at least 1/2 inch on either side of the joint. The pump shall be capable of supplying a pressure of at least 3,000

psi. A pressure gauge mounted at the pump shall show at all times the pressure in pounds per square inch (psi) at which the equipment is operating.

(**3) Sandblasting equipment.** Sandblasting equipment shall include an air compressor, hose, and a long-wearing venturi-type nozzle of proper size, shape, and opening. The maximum nozzle opening should not exceed 1/4 inch. The air compressor shall be portable and shall be capable of furnishing not less than 150 cubic feet per minute and maintaining a line pressure of not less than 90 psi at the nozzle while in use. The compressor shall be equipped with traps that will maintain the compressed air free of oil and water. The nozzle shall have an adjustable guide that will hold the nozzle aligned with the joint about one inch above the pavement surface and will direct the blast to clean the joint walls. The height, angle of inclination, and the size of the nozzle shall be adjusted as necessary to ensure satisfactory results.

b. Sealing equipment. Equipment used to install the compression seal shall place the compression seal to the prescribed depths within the specified tolerances without cutting, nicking, twisting, or otherwise damaging the seal. The equipment shall not stretch or compress the seal more than 2.0% longitudinally during installation. The machine shall be an automatic self-propelled joint seal application equipment and shall be engine powered. The machine shall include a reservoir for the lubricant/adhesive, a device for conveying the lubricant/adhesive in the proper quantities to the sides the preformed seal or the sidewalls of the joint, a reel capable of holding one full spool of compression seal, and a power-driven apparatus for feeding the joint seal through a compression device and inserting the seal into the joint. The equipment shall also include a guide to maintain the proper course along the joint being sealed. The machine shall at all times be operated by an experienced operator.

Hand operated joint seal application equipment may be used for localized areas and for projects less than 500 square yards. The equipment shall be a two-axle, four-wheel machine that includes means for compressing and inserting the compression seal into the joint and a reel capable of holding one full spool of compression seal material.

CONSTRUCTION METHODS

604-4.1 Environmental conditions. The ambient temperature and the pavement temperature within the joint wall shall be at least 35°F and rising at the time of installation of the materials. Sealant application will not be permitted if moisture or any foreign material is observed in the joint.

604-4.2 Trial joint seal and lubricant/adhesive installation. Prior to the cleaning and sealing of the joints for the entire project, a control strip at least 200 feet long shall be prepared at a location designated by the RPR using the specified materials and the approved equipment, to demonstrate the materials and construction processes for joint preparation and sealing of all types of joints included in the project. No other joints shall be sealed until the test installation has been approved by the RPR.

If materials or installation do not meet requirements, the materials shall be removed, and the joints shall be cleaned and a new trial joint seal installation shall be performed at the Contractor's expense. The RPR approved trial section will be incorporated into the permanent work.

604-4.3 Preparation of joints. Immediately before installation of the compression joint seal, the joints shall be thoroughly cleaned to remove all laitance, filler, existing sealer, foreign material and protrusions of hardened concrete from the sides and upper edges of the joint space to be sealed. Cleaning shall extend along pavement surfaces at least 1/2 inch on either side of the joint. After final cleaning and immediately prior to sealing, the joints shall be blown out with compressed air and left free of debris and water. Any irregularity in the joint face that would prevent uniform contact between the joint seal and the joint face shall be corrected prior to the installation of the joint seal.

a. Sawing. Joints shall be sawed to clean and to open them to the full specified width and depth. Immediately following the sawing operation, the joint faces and opening shall be thoroughly cleaned

using a water jet to remove all saw cuttings or debris remaining on the faces or in the joint opening. Compression seal shall be installed within three (3) calendar days of the time the joint cavity is sawed. Depth of the joint cavity shall be in accordance with manufacturer's instructions. Submit printed copies of manufacturers' instructions 60 days prior to use on the project. The saw cut for the joint seal cavity shall at all locations be centered over the joint line. The nominal width of the sawed joint seal cavity shall be as indicated in the plans and the actual width shall be within a tolerance per the manufacturer's recommendations. The nominal width of the saw cut shall be per the manufacturer's recommendations corresponding to the allowable sawing pavement temperature range and the actual pavement temperature at the time of sawing.

The pavement temperature shall be measured and recorded in the presence of the RPR. Measurement shall be made each day before commencing sawing and at any other time during the day when the temperature appears to be moving out of the allowable sawing range.

b. Waterblast cleaning. The concrete joint faces and pavement surfaces extending at least 1/2 inch from the joint edges shall be waterblasted clean. A multiple pass technique shall be used until the surfaces are free of dust, dirt, curing compound, or any residue that might prevent ready insertion or uniform contact of the seal and bonding of the lubricant/adhesive to the concrete. After final cleaning and immediately prior to sealing, the joints shall be blown out with compressed air and left completely free of debris and water.

c. Sandblast cleaning. The concrete joint faces and pavement surfaces extending at least 1/2 inch from the joint edges shall be sandblasted clean. A multiple pass technique shall be used until the surfaces are free of dust, dirt, curing compound, or any residue that might prevent ready insertion or uniform contact of the seal and bonding of the lubricant/adhesive to the concrete. After final cleaning and immediately prior to sealing, the joints shall be blown out with compressed air and left completely free of debris and water.

Sandblasting of joints may not be permitted under certain conditions. Blowing sand and dust may either violate atmospheric pollution statutes, or may drift into areas where it would be objectionable. When sandblasting is prohibited, cleaning the joints with waterblasting equipment may be used.

d. Rate of progress. Cleaning of the joint faces shall be limited to the linear footage of joint that can be sealed during the same workday.

604-4.4 Installation of the compression seal.

a. Time of installation. Joints shall be sealed within 3 calendar days of sawing the joint seal cavity and the final cleaning of the joint walls, or a temporary seal shall be installed to prevent infiltration of foreign material. If rain interrupts the sealing operations, the joints shall be washed, cleaned with air and be dry before proceeding with installing of the lubricant/adhesive and compression seal.

b. Installation Sequence. Longitudinal joints shall be sealed first, then seal the transverse joints. Transverse joint seals will be continuous from edge to edge of the pavement. Intersections shall be made monolithic by use of joint seal adhesive and care in fitting the intersection parts together. Seals which do not reach an intersection shall be removed and replaced with new seal as directed by the RPR at the Contractor's Expense. Seal extender pieces shall not be used at intersections.

c. Sealing joints. The sides of the joint seal or the sides of the joint shall be covered with a coating of lubricant/adhesive and the seal installed as specified. Butt joints and seal intersections shall be coated with liberal applications of lubricant/adhesive. Lubricant/adhesive spilled on the pavement shall be removed immediately to prevent setting on the pavement.

The joint seal shall be placed at a uniform depth within the tolerances specified. The compression joint seal shall be placed to a depth as indicated in the plans unless otherwise directed by the RPR.

The seal shall be installed in the longest practicable lengths in longitudinal joints and shall be cut at the joint intersections to provide continuous installation of the seal in the transverse joints. The joint seal shall be installed in an upright position, free from twisting, distortion, and cuts. If stretch of installed joint seal exceeds 1%, adjustments shall be made to the installation equipment and procedure. Stretch of installed joint seals exceeding 2% stretch shall be removed and replaced.

After installation of the longitudinal joint seals, it shall set for a minimum of one (1) hour prior to cutting the seal at the joint intersections. For all transverse joints, the minimum length of the preformed joint seal shall be the pavement width from edge to edge.

604-4.5 Clean-up. Upon completion of the project, all unused materials shall be removed from the site, all lubricant/adhesive on the pavement surface shall be removed, and the pavement shall be left in clean condition.

604-4.6 Quality Control and Quality Assurance.

a. Quality Control The application equipment shall be inspected to assure uniform application of lubricant/adhesive to the sides of the compression joint seal or the walls of the joint. Equipment causing cutting, twisting, nicking, excessive stretching or compressing of the compression seal, or improper application of the lubricant/adhesive, shall not be used until causes of the deficiencies are determined and corrected by the Contractor.

The seal shall be inspected by the Contractor a minimum of once per 400 feet of seal for compliance to the shrinkage or compression requirements. Measurements shall be made at the same interval to determine conformance with depth and width installation requirements.

b. Quality Assurance. Cleaned joints shall be approved by the RPR prior to installation of the lubricant/adhesive and compression joint seal.

Conformance to stretching and compression limitations shall be determined by the RPR using the following procedures:

(1) Mark the top surface of the compression seal at one foot (30 cm) intervals in a manner clear and durable to enable length determinations of the seal.

(2) After installation, the distance between the marks on the seal shall be measured by the Contractor and RPR.

(3) If the stretching or compression exceeds the specified limit, the seal shall be removed and replaced with new joint seal at the Contractor's Expense. The seal shall be removed up to the last correct measurement.

604-4.7 Acceptance. The joint sealing system (compression seal and lubricant/adhesive) shall be inspected by the RPR for proper rate of cure and bonding to the concrete, cuts, twists, nicks, and other deficiencies. Seals exhibiting any defects prior to final acceptance of the project, shall be removed from the joint, wasted, and replaced with new material in a satisfactory manner, at the Contractor's expense, as determined by the RPR.

METHOD OF MEASUREMENT

604-5.1 Measurement. Compression joint seals for pavement joints will not be measured for payment.

BASIS OF PAYMENT

604-6.1 Payment. No separate payment will be made for compression joint seals for pavement joints. All costs for labor, materials, the use of all equipment, and tools required to complete the work shall be considered subsidiary to and included in the price paid for the pavement constructed adjacent to the joint.

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM D2628	Standard Specification for Preformed Polychloroprene Elastomeric Joint Seals for Concrete Pavements
ASTM D2835	Standard Specification for Lubricant for Installation of Preformed Compression Seals in Concrete Pavements

Corps of Engineers

CRD C548	Standard Specification for Jet-Fuel and Heat Resistant Preformed Polychloroprene Elastomeric Joint Seals for Rigid Pavements

Unified Facilities Criteria (UFC)

UFC 3-250-08FA	Standard Practice for Sealing Joints and Cracks in Rigid and Flexible Pavements

END ITEM P-604

ITEM P-605 JOINT SEALANTS FOR PAVEMENTS

DESCRIPTION

605-1.1 This item shall consist of providing and installing a resilient and adhesive joint sealing material capable of effectively sealing joints in pavement; joints between different types of pavements; and cracks in existing pavement.

MATERIALS

605-2.1 Joint sealants. Joint sealant materials shall meet the requirements of ASTM D5893 Standard Specifications for Cold Applied, Single Component, Chemically Curing Silicone Joint Sealant for Portland Cement Concrete Pavements.

Each lot or batch of sealant shall be delivered to the jobsite in the manufacturer's original sealed container. Each container shall be marked with the manufacturer's name, batch or lot number, the safe heating temperature, and shall be accompanied by the manufacturer's certification stating that the sealant meets the requirements of this specification.

605-2.2 Backer rod. The material furnished shall be a compressible, non-shrinking, non-staining, non-absorbing material that is non-reactive with the joint sealant in accordance with ASTM D5249. The backer-rod material shall be 25% ± 5 % larger in diameter than the nominal width of the joint.

605-2.3 Bond breaking tapes. Not used.

CONSTRUCTION METHODS

605-3.1 Time of application. Joints shall be sealed as soon after completion of the curing period as feasible and before the pavement is opened to traffic, including construction equipment. The pavement temperature shall be 50°F (10°C) and rising at the time of application of the poured joint sealing material. Do not apply sealant if moisture is observed in the joint.

605-3.2 Equipment. Machines, tools, and equipment used in the performance of the work required by this section shall be approved before the work is started and maintained in satisfactory condition at all times. Submit a list of proposed equipment to be used in performance of construction work including descriptive data, 10 days prior to use on the project.

a. Tractor-mounted routing tool. Provide a routing tool, used for removing old sealant from the joints, of such shape and dimensions and so mounted on the tractor that it will not damage the sides of the joints. The tool shall be designed so that it can be adjusted to remove the old material to varying depths as required. The use of V-shaped tools or rotary impact routing devices will not be permitted. Hand-operated spindle routing devices may be used to clean and enlarge random cracks.

b. Concrete saw. Provide a self-propelled power saw, with water-cooled diamond or abrasive saw blades, for cutting joints to the depths and widths specified.

c. Sandblasting equipment. The Contractor must demonstrate sandblasting equipment including the air compressor, hose, guide and nozzle size, under job conditions, before approval in accordance with paragraph 605-3.3. The Contractor shall demonstrate, in the presence of the Resident Project Representative (RPR), that the method cleans the joint and does not damage the joint.

Sandblasting of joints may not be permitted under certain conditions. Blowing sand and dust may either violate atmospheric pollution statutes, or may drift into areas where it would be objectionable. When sandblasting is prohibited, cleaning the joints wit**h a waterblaster may be substituted.**

d. Waterblasting equipment. When sandblasting is prohibited, cleaning the joints with waterblasting equipment may be used. The Contractor must demonstrate waterblasting equipment including the pumps, hose, guide and nozzle size, under job conditions, before approval in accordance with paragraph 605-3.3. The Contractor shall demonstrate, in the presence of the RPR, that the method cleans the joint and does not damage the joint.

e. Hand tools. Hand tools may be used, when approved, for removing defective sealant from a crack and repairing or cleaning the crack faces. Hand tools should be carefully evaluated for potential spalling effects prior to approval for use.

f. Hot-poured sealing equipment. Not used.

g. Cold-applied, single-component sealing equipment. The equipment for installing ASTM D5893 single component joint sealants shall consist of an extrusion pump, air compressor, following plate, hoses, and nozzle for transferring the sealant from the storage container into the joint opening. The dimension of the nozzle shall be such that the tip of the nozzle will extend into the joint to allow sealing from the bottom of the joint to the top. Maintain the initially approved equipment in good working condition, serviced in accordance with the supplier's instructions, and unaltered in any way without obtaining prior approval. Small hand-held air-powered equipment (i.e., caulking guns) may be used for small applications.

605-3.3 Preparation of joints. Pavement joints for application of material in this specification must be dry, clean of all scale, dirt, dust, curing compound, and other foreign matter. The Contractor shall demonstrate, in the presence of the RPR, that the method cleans the joint and does not damage the joint.

a. Sawing. All joints shall be sawed in accordance with specifications and plan details. Immediately after sawing the joint, the resulting slurry shall be completely removed from joint and adjacent area by flushing with a jet of water, and by use of other tools as necessary.

b. Sealing. Immediately before sealing, the joints shall be thoroughly cleaned of all remaining laitance, curing compound, filler, protrusions of hardened concrete, old sealant and other foreign material from the sides and upper edges of the joint space to be sealed. Cleaning shall be accomplished by `sandblasting` as specified in paragraph 605-3.2. The newly exposed concrete joint faces and the pavement surface extending a minimum of 1/2 inch (12 mm) from the joint edge shall be sandblasted clean. Sandblasting shall be accomplished in a minimum of two passes. One pass per joint face with the nozzle held at an angle directly toward the joint face and not more than 3 inches (75 mm) from it. After final cleaning and immediately prior to sealing, blow out the joints with compressed air and leave them completely free of debris and water. The joint faces shall be surface dry when the seal is applied.

c. Backer Rod. When the joint opening is of a greater depth than indicated for the sealant depth, plug or seal off the lower portion of the joint opening using a backer rod in accordance with paragraph 605-2.2 to prevent the entrance of the sealant below the specified depth. Take care to ensure that the backer rod is placed at the specified depth and is not stretched or twisted during installation.

d. Bond-breaking tape. Not used.

605-3.4 Installation of sealants. Joints shall be inspected for proper width, depth, alignment, and preparation, and shall be approved by the RPR before sealing is allowed. Sealants shall be installed in accordance with the following requirements:

Immediately preceding, but not more than 50 feet (15 m) ahead of the joint sealing operations, perform a final cleaning with compressed air. Fill the joints from the bottom up to 1/4 inch ±1/16 inch below the top of pavement surface; or bottom of groove for grooved pavement. Remove and discard excess or spilled sealant from the pavement by approved methods. Install the sealant in such a manner as to prevent the formation of voids and entrapped air. In no case shall gravity methods or pouring pots be used to install the sealant material. Traffic shall not be permitted over newly sealed pavement until authorized by the RPR. When a primer is recommended by the manufacturer, apply it evenly to the joint faces in accordance with the manufacturer's instructions. Check the joints frequently to ensure that the newly installed sealant is cured to a tack-free condition within the time specified.

605-3.5 Inspection. The Contractor shall inspect the joint sealant for proper rate of cure and set, bonding to the joint walls, cohesive separation within the sealant, reversion to liquid, entrapped air and voids. Sealants exhibiting any of these deficiencies at any time prior to the final acceptance of the project shall be removed from the joint, wasted, and replaced as specified at no additional cost to the airport.

605-3.6 Clean-up. Upon completion of the project, remove all unused materials from the site and leave the pavement in a clean condition.

METHOD OF MEASUREMENT

605-4.1 Joint sealant for pavement joints will not be measured for payment.

BASIS OF PAYMENT

605-5.1 No direct payment will be made for joint sealant for pavement. All costs of furnishing materials, preparation, delivery, labor, installation, equipment, tools, certification, and all incidentals necessary to complete this item, shall be considered subsidiary to and included in the price paid for the pavement adjacent to the joint.

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM D789	Standard Test Method for Determination of Relative Viscosity of Polyamide (PA)
ASTM D5249	Standard Specification for Backer Material for Use with Cold- and Hot-Applied Joint Sealants in Portland-Cement Concrete and Asphalt Joints
ASTM D5893	Standard Specification for Cold Applied, Single Component, Chemically Curing Silicone Joint Sealant for Portland Cement Concrete Pavements

Advisory Circulars (AC)

AC 150/5340-30	Design and Installation Details for Airport Visual Aids

END ITEM P-605

ITEM P-606 ADHESIVE COMPOUNDS, TWO-COMPONENT FOR SEALING WIRE AND LIGHTS IN PAVEMENT

DESCRIPTION

606-1.1 This specification covers two types of material; a liquid suitable for sealing electrical wire in saw cuts in pavement and for sealing light fixtures or bases in pavement, and a paste suitable for embedding light fixtures in the pavement. Both types of material are two-component filled formulas with the characteristics specified in paragraph 606-2.4. Materials supplied for use with asphalt and/or concrete pavements must be formulated so they are compatible with the asphalt and/or concrete.

MATERIALS

606-2.1 CURING. When pre-warmed to 77°F (25°C), mixed, and placed in accordance with manufacturer's directions, the materials shall cure at temperatures of 45°F (7°C) or above without the application of external heat.

606-2.2 STORAGE. The adhesive components shall not be stored at temperatures over 86°F (30°C), unless otherwise specified by the manufacturer.

606-2.3 CAUTION. Installation and use shall be in accordance with the manufacturer's recommended procedures. Avoid prolonged or repeated contact with skin. In case of contact, wash with soap and flush with water. If taken internally, call doctor. Keep away from heat or flame. Avoid vapor. Use in well-ventilated areas. Keep in cool place. Keep away from children.

606-2.4 CHARACTERISTICS. When mixed and cured in accordance with the manufacturer's directions, the materials shall have the following properties shown in Table 1.

Table 1. Property Requirements

Physical or Electrical Property	Minimum	Maximum	ASTM Method
Tensile			
Portland cement concrete	1,000 psi (70 kg/sq cm)		D 638
Asphalt concrete	500 psi (35 kg/sq cm)		
Elongation			
Portland cement concrete		See note [1]	D 638
Asphalt concrete	50%		D 638
Coef. of cub. exp. cu. cm/cu. cm/°C	0.00090	0.00120	D 1168
Coef. of lin. exp. cm/cm/°C	0.000030	0.000040	D 1168
Dielectric strength, short time test	350 volts/mil.		D 149
Arc resistance	125 sec		
Pull-off			
Adhesion to steel	1,000 psi (70 kg/sq cm)		
Adhesion to Portland cement concrete	200 psi (14 kg/sq cm)		
Adhesion to asphalt concrete	No test available.		
Adhesion to aluminum	250 psi		

[1] 20% or more (without filler) for formulations to be supplied for areas subject to freezing.

SAMPLING, INSPECTION, AND TEST PROCEDURES

606-3.1 TENSILE PROPERTIES. Tests for tensile strength and elongation shall be conducted in accordance with ASTM D638.

606-3.2 EXPANSION. Tests for coefficients of linear and cubical expansion shall be conducted in accordance with, Method B, except that mercury shall be used instead of glycerine. The test specimen shall be mixed in the proportions specified by the manufacturer, and cured in a glass tub approximately 2 inch (50 mm) long by 3/8 inch (9 mm) in diameter. The interior of the tube shall be precoated with a silicone mold release agent. The hardened sample shall be removed from the tube and aged at room temperature for one (1) week before conducting the test. The test temperature range shall be from 35°F (2°C) to 140°F (60°C).

606-3.3 TEST FOR DIELECTRIC STRENGTH. Test for dielectric strength shall be conducted in accordance with ASTM D149 for sealing compounds to be furnished for sealing electrical wires in pavement.

606-3.4 TEST FOR ARC RESISTANCE. Test for arc resistance shall be conducted for sealing compounds to be furnished for sealing electrical wires in pavement.

606-3.5 TEST FOR ADHESION TO STEEL. The ends of two smooth, clean, steel specimens of convenient size (1 inch by 1 inch by 6 inch) (25 mm by 25 mm by 150 mm) would be satisfactory when bonded together with adhesive mixture and allowed to cure at room temperature for a period of time to meet formulation requirements and then tested to failure on a Riehle (or similar) tensile tester. The thickness of adhesive to be tested shall be 1/4 inch (6 mm).

606-3.6 ADHESION TO PORTLAND CEMENT CONCRETE

a. Concrete test block preparation. The aggregate grading shall be as shown in Table 2.

The coarse aggregate shall consist of crushed rock having a minimum of 75% of the particles with at least one fractured face and having a water absorption of not more than 1.5%. The fine aggregate shall consist of crushed sand manufactured from the same parent rock as the coarse aggregate. The concrete shall have a water-cement ratio of 5.5 gallons (21 liters) of water per bag of cement, a cement factor of 6, ±0.5, bags of cement per cubic yard (0.76 cubic meter) of concrete, and a slump of 2-1/2 inch (60 mm), ±1/2 inch (60 mm ±12 mm). The ratio of fine aggregate to total aggregate shall be approximately 40% by solid volume. The air content shall be 5.0%, ±0.5%, and it shall be obtained by the addition to the batch of an air-entraining admixture such as Vinsol® resin. The mold shall be of metal and shall be provided with a metal base plate.

Means shall be provided for securing the base plate to the mold. The assembled mold and base plate shall be watertight and shall be oiled with mineral oil before use. The inside measurement of the mold shall be such that several one inch (25 mm) by 2-inch (75 mm) by 3-inch (25 mm by 50 mm by 75 mm) test blocks can be cut from the specimen with a concrete saw having a diamond blade. The concrete shall be prepared and cured in accordance with ASTM C192.

Table 2. Aggregate for Bond Test Blocks

Type	Sieve Size	Percent Passing
Coarse Aggregate	3/4 inch (19.0 mm)	97 to 100
	1/2 inch (12.5 mm)	63 to 69
	3/8 inch (9.5 mm)	30 to 36
	No. 4 (4.75 mm)	0 to 3
Fine Aggregate	No. 4 (4.75 mm)	100
	No. 8 (2.36 mm)	82 to 88
	No. 16 (1.18 mm)	60 to 70
	No. 30 (600 µm)	40 to 50
	No. 50 (300 µm)	16 to 26
	No. 100 (150 µm)	5 to 9

b. Bond test. Prior to use, oven-dry the test blocks to constant weight at a temperature of 220°F to 230°F (104°C to 110°C), cool to room temperature, 73.4°F ±3°F (23°C ±1.6°C), in a desiccator, and clean the surface of the blocks of film or powder by vigorous brushing with a stiff-bristled fiber brush. Two test blocks shall be bonded together on the one inch by 3 inch (25 mm by 75 mm) sawed face with the adhesive mixture and allowed to cure at room temperature for a period of time to meet formulation requirements and then tested to failure in a Riehle (or similar) tensile tester. The thickness of the adhesive to be tested shall be 1/4 inch (6 mm).

606-3.7 COMPATIBILITY WITH ASPHALT MIX. Test for compatibility with asphalt in accordance

with ASTM D5329.

606-3.8 ADHESIVE COMPOUNDS - CONTRACTOR'S RESPONSIBILITY. The Contractor shall furnish the vendor's certified test reports for each batch of material delivered to the project. The report shall certify that the material meets specification requirements and is suitable for use with concrete pavements. The report shall be provided to and accepted by the Resident Project Representative (RPR) before use of the material. In addition, the Contractor shall obtain a statement from the supplier or manufacturer that guarantees the material for one year. The supplier or manufacturer shall furnish evidence that the material has performed satisfactorily on other projects.

606-3.9 APPLICATION. Adhesive shall be applied on a dry, clean surface, free of grease, dust, and other loose particles. The method of mixing and application shall be in strict accordance with the manufacturer's recommendations. When used with Item P-605, such as light can installation, Item P-605 shall not be applied until the Item P-606 has fully cured.

METHOD OF MEASUREMENT

606-4.1 The items described in this section are incidental to other sections and shall not be measured for payment.

BASIS OF PAYMENT

606-5.1 No direct payment shall be made for the work described in this section. The work described in this section is incidental to other items and shall be paid for in the respective bid item of which it is a component part.

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C192	Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory
ASTM D149	Standard Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies
ASTM D638	Standard Test Method for Tensile Properties of Plastics
ASTM D5329	Standard Test Methods for Sealants and Fillers, Hot-applied, for Joints and Cracks in Asphaltic and Portland Cement Concrete Pavements

END OF ITEM P-606

ITEM P-610 CONCRETE FOR MISCELLANEOUS STRUCTURES

DESCRIPTION

610-1.1 This item shall consist of concrete and reinforcement, as shown on the plans, prepared and constructed in accordance with these specifications. This specification shall be used for all concrete other than airfield pavement which are cast-in-place.

MATERIALS

610-2.1 General. Only approved materials, conforming to the requirements of these specifications, shall be used in the work. Materials may be subject to inspection and tests at any time during their preparation or use. The source of all materials shall be approved by the Resident Project Representative (RPR) before delivery or use in the work. Representative preliminary samples of the materials shall be submitted by the Contractor, when required, for examination and test. Materials shall be stored and handled to ensure preservation of their quality and fitness for use and shall be located to facilitate prompt inspection. All equipment for handling and transporting materials and concrete must be clean before any material or concrete is placed in them.

The use of pit-run aggregates shall not be permitted unless the pit-run aggregate has been screened and washed, and all fine and coarse aggregates stored separately and kept clean. The mixing of different aggregates from different sources in one storage stockpile or alternating batches of different aggregates shall not be permitted.

a. Reactivity. Fine aggregate and coarse aggregates to be used in all concrete shall have been tested separately within six months of the project in accordance with ASTM C1260. Test results shall be submitted to the RPR. The aggregate shall be considered innocuous if the expansion of test specimens, tested in accordance with ASTM C1260, does not exceed 0.08% at 14 days (16 days from casting). If the expansion either or both test specimen is greater than 0.08% at 14 days, but less than 0.20%, a minimum of 25% of Type F fly ash, or between 40% and 55% of slag cement shall be used in the concrete mix.

If the expansion is greater than 0.20%, the aggregates shall not be used, and test results for other aggregates must be submitted for evaluation; or aggregates that meet P-501 reactivity test requirements may be utilized. If expansion of either the coarse or fine aggregate exceeds 0.08%, at 14 days limit the alkali loading contributed by the cement content of the cement to be less than or equal to 3.0 lb per cubic yard, calculated in accordance with EB XXX.

610-2.2 Coarse aggregate. The coarse aggregate for concrete shall meet the requirements of ASTM C33 and the requirements of Table 4, Class Designation 5S; and the grading requirements shown below, as required for the project.

Coarse Aggregate Grading Requirements

Maximum Aggregate Size	ASTM C33, Table 3 Grading Requirements (Size No.)
1 1/2 inch (37.5 mm)	467 or 4 and 67
1 inch (25 mm)	57
¾ inch (19 mm)	67
½ inch (12.5 mm)	7

610-2.2.1 Coarse Aggregate susceptibility to durability (D) cracking.

Coarse aggregate may only be accepted from sources that have a 20-year service history for the same gradation to be supplied with no history of D-Cracking. Aggregates that do not have a 20-year record of service free from major repairs (less than 5% of slabs replaced) in similar conditions without D-cracking shall not be used unless the material currently being produced has a durability factor greater than or equal to 95 per ASTM C666. The Contractor shall submit a current certification and test results to verify the aggregate acceptability. Test results will only be accepted from a State Department of Transportation (DOT) materials laboratory or an accredited laboratory. Certification and test results which are not dated or which are over one (1) year old or which are for different gradations will not be accepted.

Crushed granite, calcite cemented sandstone, quartzite, basalt, diabase, rhyolite or trap rock are considered to meet the D-cracking test requirements but must meet all other quality tests specified in Item P-501.

610-2.3 Fine aggregate. The fine aggregate for concrete shall meet all fine aggregate requirements of ASTM C33.

610-2.4 Cement. Cement shall conform to the requirements of ASTM C150 Types I, II, V or ASTM C595 Types IS, P, IL, or IT.

610-2.5 Cementitious materials.

a. Fly ash. Fly ash shall meet the requirements of ASTM C618, with the exception of loss of ignition, where the maximum shall be less than 6%. Fly ash shall have a Calcium Oxide (CaO) content of less than 15% and a total available alkali content less than 3% per ASTM C311. Fly ash produced in furnace operations using liming materials or soda ash (sodium carbonate) as an additive shall not be acceptable. The Contractor shall furnish the previous three most recent, consecutive ASTM C618 reports for each source of fly ash proposed in the concrete mix, and shall furnish each additional report as they become available during the project. The reports can be used for acceptance or the material may be tested independently by the RPR.

b. Slag cement (ground granulated blast furnace (GGBF)). Slag cement shall conform to ASTM C989, Grade 100 or Grade 120. Slag cement shall be used only at a rate between 25% and 55% of the total cementitious material by mass.

610-2.6 Water. Water used in mixing or curing shall be from potable water sources. Other sources shall be tested in accordance with ASTM C1602 prior to use.

610-2.7 Admixtures. The Contractor shall submit certificates indicating that the material to be furnished meets all of the requirements indicated below. In addition, the RPR may require the Contractor to submit complete test data from an approved laboratory showing that the material to be furnished meets all of the

requirements of the cited specifications. Subsequent tests may be made of samples taken by the RPR from the supply of the material being furnished or proposed for use on the work to determine whether the admixture is uniform in quality with that approved.

a. Air-entraining admixtures. Air-entraining admixtures shall meet the requirements of ASTM C260 and shall consistently entrain the air content in the specified ranges under field conditions. The air-entrainment agent and any water reducer admixture shall be compatible.

b. Water-reducing admixtures. Water-reducing admixture shall meet the requirements of ASTM C494, Type A, B, or D. ASTM C494, Type F and G high range water reducing admixtures and ASTM C1017 flowable admixtures shall not be used.

c. Other chemical admixtures. The use of set retarding, and set-accelerating admixtures shall be approved by the RPR. Retarding shall meet the requirements of ASTM C494, Type A, B, or D and set-accelerating shall meet the requirements of ASTM C494, Type C. Calcium chloride and admixtures containing calcium chloride shall not be used.

610-2.8 Premolded joint material. Premolded joint material for expansion joints shall meet the requirements of ASTM D1751.

610-2.9 Joint filler. The filler for joints shall meet the requirements of Item P-605, unless otherwise specified.

610-2.10 Steel reinforcement. Reinforcing shall consist of conforming to the requirements of ASTM A615, Grade 60 and Welded Steel Wire Fabric conforming to the requirements of ASTM A1064**.**

610-2.11 Materials for curing concrete. Curing materials shall conform to ASTM C309, White-pigmented Liquid Membrane-Forming Compound, Type 2, Class B.

CONSTRUCTION METHODS

610-3.1 General. The Contractor shall furnish all labor, materials, and services necessary for, and incidental to, the completion of all work as shown on the drawings and specified here. All machinery and equipment used by the Contractor on the work, shall be of sufficient size to meet the requirements of the work. All work shall be subject to the inspection and approval of the RPR.

610-3.2 Concrete Mixture. The concrete shall develop a compressive strength of 4000 psi in 28 days as determined by test cylinders made in accordance with ASTM C31 and tested in accordance with ASTM C39. The concrete shall contain not less than 470 pounds of cementitious material per cubic yard. The water cementitious ratio shall not exceed 0.45 by weight. The air content of the concrete shall be 5% +/- 1.2% as determined by ASTM C231 and shall have a slump of not more than 4 inches as determined by ASTM C143.

610-3.3 Mixing. Concrete may be mixed at the construction site, at a central point, or wholly or in part in truck mixers. The concrete shall be mixed and delivered in accordance with the requirements of ASTM C94 or ASTM C685.

The concrete shall be mixed only in quantities required for immediate use. Concrete shall not be mixed while the air temperature is below 40°F without the RPRs approval. If approval is granted for mixing under such conditions, aggregates or water, or both, shall be heated and the concrete shall be placed at a temperature not less than 50°F nor more than 100°F. The Contractor shall be held responsible for any defective work, resulting from freezing or injury in any manner during placing and curing, and shall replace such work at his expense.

Retempering of concrete by adding water or any other material is not permitted.

The rate of delivery of concrete to the job shall be sufficient to allow uninterrupted placement of the concrete.

610-3.4 Forms. Concrete shall not be placed until all the forms and reinforcements have been inspected and approved by the RPR. Forms shall be of suitable material and shall be of the type, size, shape, quality, and strength to build the structure as shown on the plans. The forms shall be true to line and grade and shall be mortar-tight and sufficiently rigid to prevent displacement and sagging between supports. The surfaces of forms shall be smooth and free from irregularities, dents, sags, and holes. The Contractor shall be responsible for their adequacy.

The internal form ties shall be arranged so no metal will show in the concrete surface or discolor the surface when exposed to weathering when the forms are removed. All forms shall be wetted with water or with a non-staining mineral oil, which shall be applied immediately before the concrete is placed. Forms shall be constructed so they can be removed without injuring the concrete or concrete surface.

610-3.5 Placing reinforcement. All reinforcement shall be accurately placed, as shown on the plans, and shall be firmly held in position during concrete placement. Bars shall be fastened together at intersections. The reinforcement shall be supported by approved metal chairs. Shop drawings, lists, and bending details shall be supplied by the Contractor when required.

610-3.6 Embedded items. Before placing concrete, all embedded items shall be firmly and securely fastened in place as indicated. All embedded items shall be clean and free from coating, rust, scale, oil, or any foreign matter. The concrete shall be spaded and consolidated around and against embedded items. The embedding of wood shall not be allowed.

610-3.7 Concrete Consistency. The Contractor shall monitor the consistency of the concrete delivered to the project site; collect each batch ticket; check temperature; and perform slump tests on each truck at the project site in accordance with ASTM C143.

610-3.8 Placing concrete. All concrete shall be placed during daylight hours, unless otherwise approved. The concrete shall not be placed until the depth and condition of foundations, the adequacy of forms and falsework, and the placing of the steel reinforcing have been approved by the RPR. Concrete shall be placed as soon as practical after mixing, but in no case later than one (1) hour after water has been added to the mix. The method and manner of placing shall avoid segregation and displacement of the reinforcement. Troughs, pipes, and chutes shall be used as an aid in placing concrete when necessary. The concrete shall not be dropped from a height of more than 5 feet. Concrete shall be deposited as nearly as practical in its final position to avoid segregation due to rehandling or flowing. Do not subject concrete to procedures which cause segregation. Concrete shall be placed on clean, damp surfaces, free from running water, or on a properly consolidated soil foundation.

610-3.9 Vibration. Vibration shall follow the guidelines in American Concrete Institute (ACI) Committee 309R, Guide for Consolidation of Concrete.

610-3.10 Joints. Joints shall be constructed as indicated on the plans.

610-3.11 Finishing. All exposed concrete surfaces shall be true, smooth, and free from open or rough areas, depressions, or projections. All concrete horizontal plane surfaces shall be brought flush to the proper elevation with the finished top surface struck-off with a straightedge and floated.

610-3.12 Curing and protection. All concrete shall be properly cured in accordance with the recommendations in American Concrete Institute (ACI) 308R, Guide to External Curing of Concrete. The concrete shall be protected from damage until project acceptance.

610-3.13 Cold weather placing. When concrete is placed at temperatures below 40°F, follow the cold weather concreting recommendations found in ACI 306R, Cold Weather Concreting.

610-3.14 Hot weather placing. When concrete is placed in hot weather greater than 85ºF (30 ºC), follow the hot weather concreting recommendations found in ACI 305R, Hot Weather Concreting.

QUALITY ASSURANCE (QA)

610-4.1 Quality Assurance sampling and testing. Concrete for each day's placement will be accepted on the basis of the compressive strength specified in paragraph 610-3.2. The RPR will sample the concrete in accordance with ASTM C172; test the slump in accordance with ASTM C143; test air content in accordance with ASTM C231; make and cure compressive strength specimens in accordance with ASTM C31; and test in accordance with ASTM C39. The QA testing agency will meet the requirements of ASTM C1077.

The Contractor shall provide adequate facilities for the initial curing of cylinders.

610-4.2 Defective work. Any defective work that cannot be satisfactorily repaired as determined by the RPR, shall be removed and replaced at the Contractor's expense. Defective work includes, but is not limited to, uneven dimensions, honeycombing and other voids on the surface or edges of the concrete.

METHOD OF MEASUREMENT

610-5.1 Concrete shall be considered incidental and no separate measurement shall be made of concrete complete in place and accepted.

BASIS OF PAYMENT

610-6.1 Concrete shall be considered incidental and no separate payment shall be made. All costs for furnishing all materials including reinforcement and embedded items and for all preparation, delivery, installation, and curing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item shall be considered subsidiary to and included in the price paid for the items constructed of structural portland cement concrete.

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM A184	Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A704	Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement
ASTM A706	Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
ASTM A775	Standard Specification for Epoxy-Coated Steel Reinforcing Bars
ASTM A884	Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement

ASTM A934	Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars
ASTM A1064	Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
ASTM C31	Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C33	Standard Specification for Concrete Aggregates
ASTM C39	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C94	Standard Specification for Ready-Mixed Concrete
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C114	Standard Test Methods for Chemical Analysis of Hydraulic Cement
ASTM C136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C143	Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C150	Standard Specification for Portland Cement
ASTM C171	Standard Specification for Sheet Materials for Curing Concrete
ASTM C172	Standard Practice for Sampling Freshly Mixed Concrete
ASTM C231	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C260	Standard Specification for Air-Entraining Admixtures for Concrete
ASTM C309	Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C311	Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland-Cement Concrete
ASTM C494	Standard Specification for Chemical Admixtures for Concrete
ASTM C618	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C666	Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
ASTM C685	Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing
ASTM C989	Standard Specification for Slag Cement for Use in Concrete and Mortars
ASTM C1017	Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete
ASTM C1077	Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM C1157	Standard Performance Specification for Hydraulic Cement

ASTM C1260	Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
ASTM C1365	Standard Test Method for Determination of the Proportion of Phases in Portland Cement and Portland-Cement Clinker Using X-Ray Powder Diffraction Analysis
ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D1751	Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Asphalt Types)
ASTM D1752	Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction

American Concrete Institute (ACI)

ACI 305R	Hot Weather Concreting
ACI 306R	Cold Weather Concreting
ACI 308R	Guide to External Curing of Concrete
ACI 309R	Guide for Consolidation of Concrete

END OF ITEM P-610

ITEM P-620 RUNWAY AND TAXIWAY MARKING

DESCRIPTION

620-1.1 This item shall consist of the preparation and painting of numbers, markings, and stripes on the surface of runways, taxiways, and aprons, in accordance with these specifications and at the locations shown on the plans, or as directed by the Resident Project Representative (RPR). The terms "paint" and "marking material" as well as "painting" and "application of markings" are interchangeable throughout this specification.

MATERIALS

620-2.1 Materials acceptance. The Contractor shall furnish manufacturer's certified test reports, for materials shipped to the project. The certified test reports shall include a statement that the materials meet the specification requirements. This certification along with a copy of the paint manufacturer's surface preparation; marking materials, including adhesion, flow promoting and/or floatation additive; and application requirements must be submitted and approved by the Resident Project Representative (RPR) prior to the initial application of markings. The reports can be used for material acceptance or the RPR may perform verification testing. The reports shall not be interpreted as a basis for payment. The Contractor shall notify the RPR upon arrival of a shipment of materials to the site. All material shall arrive in sealed containers that are easily quantifiable for inspection by the RPR.

620-2.2 Marking materials.

Table 1. Marking Materials

Paint[1]				Glass Beads[2]	
Type	**Color**	**Fed Std. 595 Number**	**Application Rate Maximum**	**Type**	**Application Rate Minimum**
Waterborne Type I or II	White	37925	115 ft^2/gal	Type I, Gradation A	7 lb/gal
Waterborne Type I or II	Yellow	33538 or 33655	115 ft^2/gal	Type I, Gradation A	7 lb/gal
Waterborne Type I or II	Black	37038	115 ft^2/gal		N/A

[1] See paragraph 620-2.2a

[2] See paragraph 620-2.2b

a. Paint. Paint shall be waterborne in accordance with the requirements of this paragraph. Paint colors shall comply with Federal Standard No. 595. **Waterborne**. Paint shall meet the requirements of Federal Specification TT-P-1952F, Type I or Type II. The non-volatile portion of the vehicle for all paint types shall be composed of a 100% acrylic polymer as determined by infrared spectral analysis.

Epoxy. Not used.

Methacrylate. Not used.

Solvent-Base. Not used.

Preformed Thermoplastic Airport Pavement Markings. Not used.**b. Reflective media.** Glass beads for white and yellow paint shall meet the requirements for Federal Specification TT-B-1325D Type I, Gradation A.

Glass beads shall be treated with all compatible coupling agents recommended by the manufacturers of the paint and reflective media to ensure adhesion and embedment.

Glass beads shall not be used in black paint.

CONSTRUCTION METHODS

620-3.1 Weather limitations. Painting shall only be performed when the surface is dry, and the ambient temperature and the pavement surface temperature meet the manufacturer's recommendations in accordance with paragraph 620-2.1. Painting operations shall be discontinued when the ambient or surface temperatures does not meet the manufacturer's recommendations. Markings shall not be applied when the wind speed exceeds 10 mph unless windscreens are used to shroud the material guns. Markings shall not be applied when weather conditions are forecasts to not be within the manufacturers' recommendations for application and dry time.

620-3.2 Equipment. Equipment shall include the apparatus necessary to properly clean the existing surface, a mechanical marking machine, a bead dispensing machine, and such auxiliary hand-painting equipment as may be necessary to satisfactorily complete the job.

The mechanical marker shall be an atomizing spray-type or airless type marking machine with automatic glass bead dispensers suitable for application of traffic paint. It shall produce an even and uniform film thickness and appearance of both paint and glass beads at the required coverage and shall apply markings of uniform cross-sections and clear-cut edges without running or spattering and without over spray. The marking equipment for both paint and beads shall be calibrated daily.

620-3.3 Preparation of surfaces. Immediately before application of the paint, the surface shall be dry and free from dirt, grease, oil, laitance, or other contaminates that would reduce the bond between the paint and the pavement. Use of any chemicals or impact abrasives during surface preparation shall be approved in advance by the RPR. After the cleaning operations, sweeping, blowing, or rinsing with pressurized water shall be performed to ensure the surface is clean and free of grit or other debris left from the cleaning process.

a. Preparation of new asphalt pavement surfaces.

The temporary pavement marking areas to be painted shall be cleaned by broom, blower, water blasting, or by other methods approved by the RPR while minimizing damage to the pavement surface.

The permanent pavement marking areas to be painted shall be cleaned by broom, blower, water blasting, or by other methods approved by the RPR to remove all contaminants and loose temporary pavement markings while minimizing damage to the pavement surface. Temporary pavement markings previously installed that are not loose do not require removal prior to application of the permanent pavement markings.

b. Preparation of new concrete pavement surfaces.

The temporary pavement marking areas to be painted shall be cleaned by broom, blower, water blasting, or by other methods approved by the RPR to remove all contaminants, including PCC curing compounds, while minimizing damage to the pavement surface.

The permanent pavement marking areas to be painted shall be cleaned by broom, blower, water blasting, or by other methods approved by the RPR to remove all contaminants, including PCC curing compounds, while minimizing damage to the pavement surface. Temporary pavement markings previously installed shall be removed by rotary grinding, water blasting, or by other methods approved by the RPR while minimizing damage to the pavement surface. After removal, the surface shall be cleaned of all residue or debris. Removal of temporary markings are considered incidental to the installation of the temporary markings. Reference the phasing, demolition, and marking plans.

c. Preparation of existing pavement surfaces. Existing pavement surfaces to be painted shall be cleaned by broom, blower, water blasting, or by other methods approved by the RPR to removal all contaminants, including PCC curing compounds, and loose pavement markings while minimizing damage to the pavement surface.

620-3.4 Layout of markings. The proposed markings shall be laid out in advance of the paint application. The locations of markings to receive glass beads shall be shown on the plans.

620-3.5 Application. Prior to the application of markings, the Contractor shall certify in writing that the surface is dry and free from dirt, grease, oil, laitance, or other foreign material that would prevent the bond of the paint to the pavement or existing markings. This certification along with a copy of the paint manufacturer's application and surface preparation requirements must be submitted to the RPR prior to the initial application of markings. Paint shall not be applied until the layout and condition of the surface has been approved by the RPR.

A period of 30 days shall elapse between placement of new pavement or seal coat and application of the permanent paint markings. Temporary pavement markings shall be applied when pavements must be opened to traffic before the 30 day period has passed. When temporary markings are used, the permanent pavement markings may be installed after a minimum of 30 days has elapsed since the placement of new pavement or seal coat.

The paint for temporary and permanent markings shall be mixed in accordance with the manufacturer's instructions and applied to the pavement with a marking machine at the rate shown in Table 1. The addition of thinner will not be permitted.

Paint shall be applied at the locations and to the dimensions and spacing shown on the plans. The edges of the markings shall not vary from a straight line more than 1/2 inch in 50 feet, and marking dimensions and spacing shall be within the following tolerances:

Marking Dimensions and Spacing Tolerance

Dimension and Spacing	Tolerance
36 inch or less	±1/2 inch
greater than 36 inch to 6 feet	±1 inch
greater than 6 feet to 60 feet	±2 inch
greater than 60 feet	±3 inch

Glass beads for temporary and permanent markings shall be distributed upon the marked areas immediately after application of the paint at the locations shown on the plans to receive glass beads. A dispenser shall be furnished that is properly designed for attachment to the marking machine and suitable for dispensing glass beads. Glass beads shall be applied at the rate shown in Table 1. Glass beads shall adhere to the cured paint or all marking operations shall cease until corrections are made. Different bead types shall not be mixed. Regular monitoring of glass bead embedment and distribution should be performed.

620-3.6 Application--preformed thermoplastic airport pavement markings.

Preformed thermoplastic pavement markings not used.

620-3.7 Control strip. Prior to the full application of airfield markings, the Contractor shall prepare a control strip in the presence of the RPR. The Contractor shall demonstrate the surface preparation method and all striping equipment to be used on the project. The marking equipment must achieve the prescribed application rate of paint and population of glass beads (per Table 1) that are properly embedded and evenly distributed across the full width of the marking. Prior to acceptance of the control strip, markings must be evaluated during darkness to ensure a uniform appearance.

620-3.8 Retro-reflectance. Reflectance shall be measured with a portable retro-reflectometer meeting ASTM E1710 (or equivalent). A total of 6 reading shall be taken over a 6 square foot area with 3 readings taken from each direction. The average shall be equal to or above the minimum levels of all readings which are within 30% of each other.

Minimum Retro-Reflectance Values

Material	**Retro-reflectance mcd/m^2/lux**		
	White	**Yellow**	**Red**
Initial Type I	300	175	35
Initial Type III	600	300	35
Initial Thermoplastic	225	100	35
All materials, remark when less than[1]	100	75	10

[1] 'Prior to remarking determine if removal of contaminants on markings will restore retro-reflectance

620-3.9 Protection and cleanup. After application of the markings, all markings shall be protected from damage until dry. All surfaces shall be protected from excess moisture and/or rain and from disfiguration by spatter, splashes, spillage, or drippings. The Contractor shall remove from the work area all debris, waste, loose reflective media, and by-products generated by the surface preparation and application operations to the satisfaction of the RPR. The Contractor shall dispose of these wastes in strict compliance with all applicable state, local, and federal environmental statutes and regulations.

620-3.10 Removal of permanent pavement markings. Existing permanent pavement markings shall be removed from the surface of the existing pavement at the locations shown on the plans or as directed by the RPR. Existing permanent pavement markings shall be removed by water blasting, heater scarifier, rotary grinding, sandblasting, or by other methods approved by the RPR. Any methods used shall not cause major damage to the pavement. Major damage is defined as changing the properties of the

pavement or removing pavement over 1/8 inch deep. After removal, the surface shall be cleaned of all residue or debris. All wastes shall be disposed of in areas located off of airport property.

METHOD OF MEASUREMENT

620-4.1a The quantity of surface preparation shall not be measured for payment and shall be considered subsidiary to the specified markings .

620-4.1b The quantity of permanent markings to be paid for shall be measured by the number of square feet of painting**.**

620-4.1c The quantity of reflective media shall not be measured for payment and shall be considered subsidiary to use in the specified markings..

620-4.1d The quantity of temporary markings to be paid for shall be the number of square feet of painting performed in accordance with the specifications and accepted by the RPR. Temporary marking includes surface preparation, application and complete removal of the temporary marking.

620-4.1e The quantity for removal of permanent pavement markings to be paid for shall be measured by the number of square feet of marking removal.

BASIS OF PAYMENT

620-5.1 This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item complete in place and accepted by the RPR in accordance with these specifications.

620-5.2a Payment for markings shall be made at the contract price for the number of square feet of painting.

620-5.4b Payment for temporary markings shall be made at the contract price for the number of square feet of painting. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item.

620-5.5c Payment for permanent pavement marking removals shall be made at the contract price for the number of square feet of marking removal.

Payment will be made under:

Item P-620-1	Runway and Taxiway Markings - per square foot
Item P-620-2	Temporary Pavement Markings - per square foot
Item P-620-3	Permanent Pavement Marking Removal - per square foot

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM D476	Standard Classification for Dry Pigmentary Titanium Dioxide Products
ASTM D968	Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive

ASTM D1652	Standard Test Method for Epoxy Content of Epoxy Resins
ASTM D2074	Standard Test Method for Total, Primary, Secondary, and Tertiary Amine Values of Fatty Amines by Alternative Indicator Method
ASTM D2240	Standard Test Method for Rubber Property - Durometer Hardness
ASTM D7585	Standard Practice for Evaluating Retroreflective Pavement Markings Using Portable Hand-Operated Instruments
ASTM E303	Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester
ASTM E1710	Standard Test Method for Measurement of Retroreflective Pavement Marking Materials with CEN-Prescribed Geometry Using a Portable Retroreflectometer
ASTM E2302	Standard Test Method for Measurement of the Luminance Coefficient Under Diffuse Illumination of Pavement Marking Materials Using a Portable Reflectometer
ASTM G154	Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials

Code of Federal Regulations (CFR)

40 CFR Part 60, Appendix A-7, Method 24	Determination of volatile matter content, water content, density, volume solids, and weight solids of surface coatings
29 CFR Part 1910.1200	Hazard Communication

Federal Specifications (FED SPEC)

FED SPEC TT-B-1325D	Beads (Glass Spheres) Retro-Reflective
FED SPEC TT-P-1952F	Paint, Traffic and Airfield Marking, Waterborne
FED STD 595	Colors used in Government Procurement

Commercial Item Description

A-A-2886B	Paint, Traffic, Solvent Based

Advisory Circulars (AC)

AC 150/5340-1	Standards for Airport Markings
AC 150/5320-12	Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces

END OF ITEM P-620

ITEM D-751 MANHOLES, CATCH BASINS, INLETS AND INSPECTION HOLES

DESCRIPTION

751-1.1 This item shall consist of construction of manholes, catch basins, inlets, and inspection holes, in accordance with these specifications, at the specified locations and conforming to the lines, grades, and dimensions shown on the plans or required by the RPR.

MATERIALS

751-2.1 Brick. Not used.

751-2.2 Mortar. Not used.

751-2.3 Concrete. Plain and reinforced concrete used in structures, connections of pipes with structures, and the support of structures or frames shall conform to the requirements of Item P-610.

751-2.4 Precast concrete pipe manhole rings. Not used.

751-2.5 Corrugated metal. Not used.

751-2.6 Frames, covers, and grates. The castings shall conform to one of the following requirements:

a. ASTM A48, Class 35B: Gray iron castings

b. ASTM A47: Malleable iron castings

c. ASTM A27: Steel castings

d. ASTM A283, Grade D: Structural steel for grates and frames

e. ASTM A536, Grade 65-45-12: Ductile iron castings

f. ASTM A897: Austempered ductile iron castings

All castings or structural steel units shall conform to the dimensions shown on the plans and shall be designed to support the loadings, aircraft gear configuration and/or direct loading, specified.

Each frame and cover or grate unit shall be provided with fastening members to prevent it from being dislodged by traffic but which will allow easy removal for access to the structure.

All castings shall be thoroughly cleaned. After fabrication, structural steel units shall be galvanized to meet the requirements of ASTM A123.

751-2.7 Steps. Not used.

751-2.8 Precast inlet structures. Not used.

CONSTRUCTION METHODS

751-3.1 Unclassified excavation.

a. The Contractor shall excavate for structures and footings to the lines and grades or elevations, shown on the plans, or as staked by the RPR. The excavation shall be of sufficient size to permit the placing of the full width and length of the structure or structure footings shown. The elevations of the

bottoms of footings, as shown on the plans, shall be considered as approximately only; and the RPR may direct, in writing, changes in dimensions or elevations of footings necessary for a satisfactory foundation.

b. Boulders, logs, or any other objectionable material encountered in excavation shall be removed. All rock or other hard foundation material shall be cleaned of all loose material and cut to a firm surface either level, stepped, or serrated, as directed by the RPR. All seams or crevices shall be cleaned out and grouted. All loose and disintegrated rock and thin strata shall be removed. Where concrete will rest on a surface other than rock, the bottom of the excavation shall not be disturbed and excavation to final grade shall not be made until immediately before the concrete or reinforcing is placed.

c. The Contractor shall do all bracing, sheathing, or shoring necessary to implement and protect the excavation and the structure as required for safety or conformance to governing laws. The cost of bracing, sheathing, or shoring shall be included in the unit price bid for the structure.

d. All bracing, sheathing, or shoring involved in the construction of this item shall be removed by the Contractor after the completion of the structure. Removal shall not disturb or damage finished masonry. The cost of removal shall be included in the unit price bid for the structure.

e. After excavation is completed for each structure, the Contractor shall notify the RPR. No concrete or reinforcing steel shall be placed until the RPR has approved the depth of the excavation and the character of the foundation material.

751-3.2 Brick structures. Not used.

751-3.3 Concrete structures. Concrete structures which are to be cast-in-place within the project boundaries shall be built on prepared foundations, conforming to the dimensions and shape indicated on the plans. The construction shall conform to the requirements specified in Item P-610. Any reinforcement required shall be placed as indicated on the plans and shall be approved by the RPR before the concrete is placed.

All invert channels shall be constructed and shaped accurately to be smooth, uniform, and cause minimum resistance to flowing water. The interior bottom shall be sloped to the outlet.

751-3.4 Precast concrete structures. Not used.

751-3.5 Corrugated metal structures. Not used.

751-3.6 Inlet and outlet pipes. Inlet and outlet pipes shall extend through the walls of the structures a sufficient distance beyond the outside surface to allow for connections. They shall be cut off flush with the wall on the inside surface of the structure, unless otherwise directed. For concrete, mortar shall be placed around these pipes to form a tight, neat connection.

751-3.7 Placement and treatment of castings, frames, and fittings. All castings, frames, and fittings shall be placed in the positions indicated on the plans or as directed by the RPR, and shall be set true to line and elevation. If frames or fittings are to be set in concrete or cement mortar, all anchors or bolts shall be in place before the concrete or mortar is placed. The unit shall not be disturbed until the mortar or concrete has set.

When frames or fittings are placed on previously constructed masonry, the bearing surface of the masonry shall be brought true to line and grade and shall present an even bearing surface so the entire face or back of the unit will come in contact with the masonry. The unit shall be set in mortar beds and anchored to the masonry as indicated on the plans or as directed by the RPR. All units shall set firm and secure.

After the frames or fittings have been set in final position, the concrete or mortar shall be allowed to harden for seven (7) days before the grates or covers are placed and fastened down.

751-3.8 Installation of steps. Not used.

751-3.9 Backfilling.

a. After a structure has been completed, the area around it shall be backfilled with approved material, in horizontal layers not to exceed 8 inches in loose depth, and compacted to the density required in Item P-152. Each layer shall be deposited evenly around the structure to approximately the same elevation. The top of the fill shall meet the elevation shown on the plans or as directed by the RPR.

b. Backfill shall not be placed against any structure until approved by the RPR. For concrete structures, approval shall not be given until the concrete has been in place seven (7) days, or until tests establish that the concrete has attained sufficient strength to withstand any pressure created by the backfill and placing methods.

c. Backfill shall not be measured for direct payment. Performance of this work shall be considered an obligation of the Contractor covered under the contract unit price for the structure involved.

751-3.10 Cleaning and restoration of site. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt, and rubbish from the site. Surplus dirt may be deposited in embankments, shoulders, or as approved by the RPR. The Contractor shall restore all disturbed areas to their original condition. The Contractor shall remove all tools and equipment, leaving the entire site free, clear, and in good condition.

METHOD OF MEASUREMENT

751-4.1 Underdrain cleanouts shall be measured by the unit.

BASIS OF PAYMENT

751-5.1 The accepted quantities of manholes, catch basins, inlets, and inspection holes will be paid for at the contract unit price per each in place when completed. This price shall be full compensation for furnishing all materials and for all preparation, excavation, backfilling and placing of the materials; furnishing and installation of such specials and connections to pipes and other structures as may be required to complete the item as shown on the plans; and for all labor equipment, tools and incidentals necessary to complete the structure.

Payment will be made under:

Item D-751-1	Underdrain Cleanout - per each

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM A27	Standard Specification for Steel Castings, Carbon, for General Application
ASTM A47	Standard Specification for Ferritic Malleable Iron Castings
ASTM A48	Standard Specification for Gray Iron Castings
ASTM A123	Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

ASTM A283	Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
ASTM A536	Standard Specification for Ductile Iron Castings
ASTM A897	Standard Specification for Austempered Ductile Iron Castings
ASTM C32	Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale)
ASTM C144	Standard Specification for Aggregate for Masonry Mortar
ASTM C150	Standard Specification for Portland Cement
ASTM C443	Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
ASTM C478	Standard Specification for Precast Reinforced Concrete Manhole Sections
ASTM C913	Standard Specification for Precast Concrete Water and Wastewater Structures.

END OF ITEM D-751

ITEM T-901 SEEDING

DESCRIPTION

901-1.1 This item shall consist of soil preparation, seeding and fertilizing the areas shown on the plans or as directed by the RPR in accordance with these specifications.

MATERIALS

901-2.1 Seed. The species and application rates of grass, legume, and cover-crop seed furnished shall be those stipulated herein. Seed shall conform to the requirements of Federal Specification JJJ-S-181, Federal Specification, Seeds, Agricultural.

Seed shall be furnished separately or in mixtures in standard containers labeled in conformance with the Agricultural Marketing Service (AMS) Seed Act and applicable state seed laws with the seed name, lot number, net weight, percentages of purity and of germination and hard seed, and percentage of maximum weed seed content clearly marked for each kind of seed. The Contractor shall furnish the RPR duplicate signed copies of a statement by the vendor certifying that each lot of seed has been tested by a recognized laboratory for seed testing within six (6) months of date of delivery. This statement shall include: name and address of laboratory, date of test, lot number for each kind of seed, and the results of tests as to name, percentages of purity and of germination, and percentage of weed content for each kind of seed furnished, and, in case of a mixture, the proportions of each kind of seed. Wet, moldy, or otherwise damaged seed will be rejected.

Seeds shall be applied as follows:

Seed Properties and Rate of Application

Seed	Minimum Seed Purity (Percent)	Minimum Germination (Percent)	Rate of Application lb/acre
Fescue, Tall, K-31	80	80	120
Ryegrass, Perennial	80	80	50

Seeding shall be performed during the period between February 15 to April 20 and August 20 to October 10 inclusive, unless otherwise approved by the RPR.

901-2.2 Lime. Not required.

901-2.3 Fertilizer. Fertilizer shall be standard commercial fertilizers supplied separately or in mixtures containing the percentages of total nitrogen, available phosphoric acid, and water-soluble potash. They shall be applied at the rate and to the depth specified, and shall meet the requirements of applicable state laws. They shall be furnished in standard containers with name, weight, and guaranteed analysis of contents clearly marked thereon. No cyanamide compounds or hydrated lime shall be permitted in mixed fertilizers.

The fertilizers may be supplied in one of the following forms:

a. A dry, free-flowing fertilizer suitable for application by a common fertilizer spreader;

b. A finely-ground fertilizer soluble in water, suitable for application by power sprayers; or

c. A granular or pellet form suitable for application by blower equipment.

Fertilizers shall be 12-12-12 commercial fertilizer, or approved alternate, and shall be spread at the rate of 600 pounds per acre.

901-2.4 Soil for repairs. The soil for fill and topsoiling of areas to be repaired shall be at least of equal quality to that which exists in areas adjacent to the area to be repaired. The soil shall be relatively free from large stones, roots, stumps, or other materials that will interfere with subsequent sowing of seed, compacting, and establishing turf, and shall be approved by the RPR before being placed.

CONSTRUCTION METHODS

901-3.1 Advance preparation and cleanup. After grading of areas has been completed and before applying fertilizer, areas to be seeded shall be raked or otherwise cleared of stones larger than 2 inches in any diameter, sticks, stumps, and other debris that might interfere with sowing of seed, growth of grasses, or subsequent maintenance of grass-covered areas. If any damage by erosion or other causes has occurred after the completion of grading and before beginning the application of fertilizer the Contractor shall repair such damage include filling gullies, smoothing irregularities, and repairing other incidental damage.

An area to be seeded shall be considered a satisfactory seedbed without additional treatment if it has recently been thoroughly loosened and worked to a depth of not less than 5 inches as a result of grading operations and, if immediately prior to seeding, the top 3 inches of soil is loose, friable, reasonably free from large clods, rocks, large roots, or other undesirable matter, and if shaped to the required grade.

When the area to be seeded is sparsely sodded, weedy, barren and unworked, or packed and hard, any grass and weeds shall first be cut or otherwise satisfactorily disposed of, and the soil then scarified or otherwise loosened to a depth not less than 5 inches. Clods shall be broken and the top 3 inches of soil shall be worked into a satisfactory seedbed by discing, or by use of cultipackers, rollers, drags, harrows, or other appropriate means.

901-3.2 Dry application method.

a. Liming. Not required.

b. Fertilizing. Following advance preparations and cleanup fertilizer shall be uniformly spread at the rate that will provide not less than the minimum quantity stated in paragraph 901-2.3.

c. Seeding. Grass seed shall be sown at the rate specified in paragraph 901-2.1 immediately after fertilizing. The fertilizer and seed shall be raked within the standard depth range. Seeds of legumes, either alone or in mixtures, shall be inoculated before mixing or sowing, in accordance with the instructions of the manufacturer of the inoculant. When seeding is required at other than the seasons shown on the plans, a cover crop as required and paid for in Section C-102 shall be sown by the same methods required for grass and legume seeding.

d. Rolling. After the seed has been properly covered, the seedbed shall be immediately compacted by means of an approved lawn roller, weighing 40 to 65 pounds per foot (60 to 97 kg per meter) of width for clay soil (or any soil having a tendency to pack), and weighing 150 to 200 pounds per foot (223 to 298 kg per meter) of width for sandy or light soils.

901-3.3 Wet application method.

a. General. The Contractor may elect to apply seed and fertilizer by spraying them on the previously prepared seedbed in the form of an aqueous mixture and by using the methods and equipment described herein.

b. Spraying equipment. The spraying equipment shall have a container or water tank equipped with a liquid level gauge calibrated to read in increments not larger than 50 gallons over the entire range of the tank capacity, mounted so as to be visible to the nozzle operator. The container or tank shall also be equipped with a mechanical power-driven agitator capable of keeping all the solids in the mixture in complete suspension at all times until used.

The unit shall also be equipped with a pressure pump capable of delivering 100 gallons per minute at a pressure of 100 lb / sq inches. The pump shall be mounted in a line that will recirculate the mixture through the tank whenever it is not being sprayed from the nozzle. All pump passages and pipe lines shall be capable of providing clearance for 5/8 inch solids. The power unit for the pump and agitator shall have controls mounted so as to be accessible to the nozzle operator. There shall be an indicating pressure gauge connected and mounted immediately at the back of the nozzle.

The nozzle pipe shall be mounted on an elevated supporting stand in such a manner that it can be rotated through 360 degrees horizontally and inclined vertically from at least 20 degrees below to at least 60 degrees above the horizontal. There shall be a quick-acting, three-way control valve connecting the recirculating line to the nozzle pipe and mounted so that the nozzle operator can control and regulate the amount of flow of mixture delivered to the nozzle. At least three different types of nozzles shall be supplied so that mixtures may be properly sprayed over distance varying from 20 to 100 feet. One shall be a close-range ribbon nozzle, one a medium-range ribbon nozzle, and one a long-range jet nozzle. For case of removal and cleaning, all nozzles shall be connected to the nozzle pipe by means of quick-release couplings.

In order to reach areas inaccessible to the regular equipment, an extension hose at least 50 feet in length shall be provided to which the nozzles may be connected.

c. Mixtures. Seed and fertilizer shall be mixed together in the relative proportions specified, but not more than a total of 220 pounds of these combined solids shall be added to and mixed with each 100 gallons of water.

All water used shall be obtained from fresh water sources and shall be free from injurious chemicals and other toxic substances harmful to plant life. The Contractor shall identify to the RPR all sources of water at least two (2) weeks prior to use. The RPR may take samples of the water at the source or from the tank at any time and have a laboratory test the samples for chemical and saline content. The Contractor shall not use any water from any source that is disapproved by the RPR following such tests.

All mixtures shall be constantly agitated from the time they are mixed until they are finally applied to the seedbed. All such mixtures shall be used within two (2) hours from the time they were mixed or they shall be wasted and disposed of at approved locations.

d. Spraying. Mixtures of seed and fertilizer shall only be sprayed upon previously prepared seedbeds. The mixtures shall be applied by means of a high-pressure spray that shall always be directed upward into the air so that the mixtures will fall to the ground like rain in a uniform spray. Nozzles or sprays shall never be directed toward the ground in such a manner as might produce erosion or runoff.

Particular care shall be exercised to ensure that the application is made uniformly and at the prescribed rate and to guard against misses and overlapped areas. Proper predetermined quantities of the mixture in accordance with specifications shall be used to cover specified sections of known area.

Checks on the rate and uniformity of application may be made by observing the degree of wetting of the ground or by distributing test sheets of paper or pans over the area at intervals and observing the quantity of material deposited thereon.

901-3.4 Maintenance of seeded areas. The Contractor shall protect seeded areas against traffic or other use by warning signs or barricades, as approved by the RPR. Surfaces gullied or otherwise damaged following seeding shall be repaired by regrading and reseeding as directed. The Contractor shall mow,

water, and otherwise maintain seeded areas in a satisfactory condition until final inspection and acceptance of the work.

When either the dry or wet application method outlined above is used for work done in or out of season, it will be required that the Contractor establish a good stand of grass of uniform color and density to the satisfaction of the RPR. A grass stand shall be considered adequate when bare spots are one square foot (0.01 sq m) or less, randomly dispersed, and do not exceed 3% of the area seeded.

METHOD OF MEASUREMENT

901-4.1 The quantity of seeding to be paid for shall be the number acr**es** measured on the ground surface, completed and accepted.

BASIS OF PAYMENT

901-5.1 Payment shall be made at the contract unit price per acre or fraction thereof, which price and payment shall be full compensation for furnishing and placing all material and for all labor, equipment, tools, and incidentals necessary to complete the work prescribed in this item.

Payment will be made under:

Item T-901-1	Seeding – per acre

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Federal Specifications (FED SPEC)

FED SPEC	JJJ-S-181, Federal Specification, Seeds, Agricultural

Advisory Circulars (AC)

AC 150/5200-33	Hazardous Wildlife Attractants on or Near Airports

FAA/United States Department of Agriculture

Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM T-901

ITEM T-904 SODDING

DESCRIPTION

904-1.1 This item shall consist of furnishing, hauling, and placing approved live sod on prepared areas in accordance with this specification at the locations shown on the plans or as directed by the RPR.

MATERIALS

904-2.1 Sod. Sod furnished by the Contractor shall have a good cover of living or growing grass. This shall be interpreted to include grass that is seasonally dormant during the cold or dry seasons and capable of renewing growth after the dormant period. All sod shall be obtained from areas where the soil is reasonably fertile and contains a high percentage of loamy topsoil. Sod shall be cut or stripped from living, thickly matted turf relatively free of weeds or other undesirable foreign plants, large stones, roots, or other materials that might be detrimental to the development of the sod or to future maintenance. At least 70% of the plants in the cut sod shall be composed of turf type Fescue Tall, and any vegetation more than 6 inches in height shall be mowed to a height of 3 inches or less before sod is lifted. Sod, including the soil containing the roots and the plant growth showing above, shall be cut uniformly.

904-2.2 Lime. Not required.

904-2.3 Fertilizer. Fertilizer shall be standard commercial fertilizers supplied separately or in mixtures containing the percentages of total nitrogen, available phosphoric acid, and water-soluble potash. They shall be applied at the rate and to the depth specified, and shall meet the requirements of applicable state laws. They shall be furnished in standard containers with name, weight, and guaranteed analysis of contents clearly marked thereon. No cyanamide compounds or hydrated lime shall be permitted in mixed fertilizers.

The fertilizers may be supplied in one of the following forms:

a. A dry, free-flowing fertilizer suitable for application by a common fertilizer spreader;

b. A finely-ground fertilizer soluble in water, suitable for application by power sprayers; or

c. A granular or pellet form suitable for application by blower equipment.

Fertilizers shall be 12-12-12 commercial fertilizer and shall be spread at the rate of 600 pounds per acre.

904-2.4 Water. The water shall be sufficiently free from oil, acid, alkali, salt, or other harmful materials that would inhibit the growth of grass.

904-2.5 Soil for repairs. The soil for fill and topsoiling of areas to be repaired shall be at least of equal quality to that which exists in areas adjacent to the area to be repaired. The soil shall be relatively free from large stones, roots, stumps, or other materials that will interfere with subsequent sowing of seed, compacting, and establishing turf, and shall be approved by the RPR before being placed.

CONSTRUCTION METHODS

904-3.1 General. Areas to be solid, strip, or spot sodded shall be shown on the plans. Areas requiring special ground surface preparation such as tilling and those areas in a satisfactory condition that are to remain undisturbed shall also be shown on the plans.

Suitable equipment necessary for proper preparation of the ground surface and for the handling and placing of all required materials shall be on hand, in good condition, and shall be approved by the RPR before the various operations are started. The Contractor shall demonstrate to the RPR before starting the various operations that the application of required materials will be made at the specified rates.

904-3.2 Preparing the ground surface. After grading of areas has been completed and before applying fertilizer, areas to be sodded shall be raked or otherwise cleared of stones larger than 2 inches in any diameter, sticks, stumps, and other debris which might interfere with sodding, growth of grasses, or subsequent maintenance of grass-covered areas. If any damage by erosion or other causes occurs after grading of areas and before beginning the application of fertilizer, the Contractor shall repair such damage. This may include filling gullies, smoothing irregularities, and repairing other incidental damage.

904-3.3 Applying fertilizer. Following ground surface preparation, fertilizer shall be uniformly spread at a rate which will provide not less than the minimum quantity of each fertilizer ingredient. These materials shall be incorporated into the soil to a depth of not less than 2 inches by discing, raking, or other suitable methods. Any stones larger than 2 inches in any diameter, large clods, roots, and other litter brought to the surface by this operation shall be removed.

904-3.4 Obtaining and delivering sod. After inspection and approval of the source of sod by the RPR, the sod shall be cut with approved sod cutters to such a thickness that after it has been transported and placed on the prepared bed, but before it has been compacted, it shall have a uniform thickness of not less than 2 inches. Sod sections or strips shall be cut in uniform widths, not less than 10 inches, and in lengths of not less than 18 inches, but of such length as may be readily lifted without breaking, tearing, or loss of soil. Where strips are required, the sod must be rolled without damage with the grass folded inside. The Contractor may be required to mow high grass before cutting sod.

The sod shall be transplanted within 24 hours from the time it is stripped, unless circumstances beyond the Contractor's control make storing necessary. In such cases, sod shall be stacked, kept moist, and protected from exposure to the air and sun and shall be kept from freezing. Sod shall be cut and moved only when the soil moisture conditions are such that favorable results can be expected. Where the soil is too dry, approval to cut sod may be granted only after it has been watered sufficiently to moisten the soil to the depth the sod is to be cut.

904-3.5 Laying sod. Sodding shall be performed only during the seasons when satisfactory results can be expected. Frozen sod shall not be used and sod shall not be placed upon frozen soil. Sod may be transplanted during periods of drought with the approval of the RPR, provided the sod bed is watered to moisten the soil to a depth of at least 4 inches after laying the sod.

The sod shall be moist and shall be placed on a moist earth bed. Pitch forks shall not be used to handle sod, and dumping from vehicles shall not be permitted. The sod shall be carefully placed by hand, edge to edge and with staggered joints, in rows at right angles to the slopes, commencing at the base of the area to be sodded and working upward. The sod shall immediately be pressed firmly into contact with the sod bed by tamping or rolling with approved equipment to provide a true and even surface, and ensure knitting without displacement of the sod or deformation of the surfaces of sodded areas. Where the sod may be displaced during sodding operations, the workmen, when replacing it, shall work from ladders or treaded planks to prevent further displacement. Screened soil of good quality shall be used to fill all cracks between sods. The quantity of the fill soil shall not cause smothering of the grass. Where the grades are such that the flow of water will be from paved surfaces across sodded areas, the surface of the soil in the sod after compaction shall be set approximately one inch below the pavement edge. Where the flow will be over the sodded areas and onto the paved surfaces around manholes and inlets, the surface of the soil in the sod after compaction shall be placed flush with pavement edges.

On slopes steeper than one (1) vertical to 2-1/2 horizontal and in v-shaped or flat-bottom ditches or gutters, the sod shall be pegged with wooden pegs not less than 12 inches in length and have a cross-sectional area of not less than 3/4 sq inch. The pegs shall be driven flush with the surface of the sod.

904-3.6 Watering. Adequate water and watering equipment must be on hand before sodding begins, and sod shall be kept moist until it has become established and its continued growth assured. In all cases, watering shall be done in a manner that will avoid erosion from the application of excessive quantities and will avoid damage to the finished surface.

904-3.7 Establishing turf. The Contractor shall provide general care for the sodded areas as soon as the sod has been laid and shall continue until final inspection and acceptance of the work. All sodded areas shall be protected against traffic or other use by warning signs or barricades approved by the RPR. The Contractor shall mow the sodded areas with approved mowing equipment, depending upon climatic and growth conditions and the needs for mowing specific areas. Weeds or other undesirable vegetation shall be mowed and the clippings raked and removed from the area.

904-3.8 Repairing. When the surface has become gullied or otherwise damaged during the period covered by this contract, the affected areas shall be repaired to re-establish the grade and the condition of the soil, as directed by the RPR, and shall then be sodded as specified in paragraph 904-3.5.

METHOD OF MEASUREMENT

904-4.1 This item shall be measured on the basis of the area in square yards of the surface covered with sod and accepted.

BASIS OF PAYMENT

904-5.1 This item will be paid for on the basis of the contract unit price per square yard (square meter) for sodding, which price shall be full compensation for all labor, equipment, material, staking, and incidentals necessary to satisfactorily complete the items as specified.

Payment will be made under:

Item T-904-1	Sodding - per square yard

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5200-33 Hazardous Wildlife Attractants on or Near Airports

FAA/United States Department of Agriculture

Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM T-904

ITEM T-908 MULCHING

DESCRIPTION

908-1.1 This item shall consist of furnishing, hauling, placing, and securing mulch on surfaces indicated on the plans or designated by the RPR.

MATERIALS

908-2.1 Mulch material. Acceptable mulch shall be the materials listed below or any approved locally available material that is similar to those specified. Mulch shall be free from noxious weeds, mold, and other deleterious materials. Mulch materials, which contain matured seed of species that would volunteer and be detrimental to the proposed overseeding, or to surrounding farm land, will not be acceptable. Straw or other mulch material which is fresh and/or excessively brittle, or which is in such an advanced stage of decomposition as to smother or retard the planted grass, will not be acceptable.

a. Hay. Not used.

b. Straw. Not used.

c. Hay mulch containing seed. Not used

d. Manufactured mulch. Cellulose-fiber or wood-pulp mulch shall be products commercially available for use in spray applications. The mulch shall contain no growth or germination inhibiting factors and it shall comply with the following requirements.

Property	Requirement
Wood	70%
Paper	30%
Moisture Content	9-15%
Organic Matter	80% min.
pH	6.5 avg.
Water Holding Capacity	1.6 gal/lb
Guar Tackifier	2% min.

e. Asphalt binder. Not used.

908-2.2 Inspection. The RPR shall be notified of sources and quantities of mulch materials available and the Contractor shall furnish him with representative samples of the materials to be used 30 days before delivery to the project. These samples may be used as standards with the approval of the RPR and any materials brought on the site that do not meet these standards shall be rejected.

CONSTRUCTION METHODS

908-3.1 Mulching. Before spreading mulch, all large clods, stumps, stones, brush, roots, and other foreign material shall be removed from the area to be mulched. Mulch shall be applied immediately after seeding. The spreading of the mulch may be by mechanical methods, provided a uniform covering is obtained. Uniform and adequate coverage shall be determined by the RPR and be a minimum of 2 applications from varying directions.

Mulch material shall be furnished, hauled, and evenly applied on the area shown on the plans or designated by the RPR.

908-3.2 Securing mulch. The mulch shall be held in place by an adhesive material approved by the RPR.

908-3.3 Care and repair.

a. The Contractor shall care for the mulched areas until final acceptance of the project. Care shall consist of providing protection against traffic or other use by placing warning signs, as approved by the RPR, and erecting any barricades that may be shown on the plans before or immediately after mulching has been completed on the designated areas.

b. The Contractor shall be required to repair or replace any mulch that is defective or becomes damaged until the project is finally accepted. When, in the judgment of the RPR, such defects or damages are the result of poor workmanship or failure to meet the requirements of the specifications, the cost of the necessary repairs or replacement shall be borne by the Contractor.

METHOD OF MEASUREMENT

908-4.1 Mulching shall be measured in square yards on the basis of the actual surface area acceptably mulched.

BASIS OF PAYMENT

908-5.1 Payment will be made at the contract unit price per square yard for mulching. The price shall be full compensation for furnishing all materials and for placing and anchoring the materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item T-908-1	Mulching - per acre

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5200-33 Hazardous Wildlife Attractants on or Near Airports

FAA/United States Department of Agriculture

Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM T-908

ITEM L-100 GENERAL PROVISIONS AND REQUIREMENTS FOR ELECTRICAL WORK

100-1.1 SPECIAL REQUIREMENTS FOR ELECTRICAL WORK. These special requirements shall apply for the electrical work. Where the requirements of another division, item, section or part of the contract documents exceed the requirements of this item, those requirements shall govern.

100-1.2 AUXILIARIES AND ACCESSORIES. Include all auxiliaries and accessories for a complete and properly operating system, to the satisfaction of the Owner and Engineer

Provide and install all electrical systems and any necessary appurtenances as per FAA Advisory Circulars and if applicable, NEC and local codes whether specified or shown on drawings or not. The content of these specifications and Contract Documents in general only refers to work required above and beyond the requirements of FAA Advisory Circulars, the NEC and applicable local codes.

100-1.3 PROJECT PAY ITEMS. The project pay items are provided to be inclusive of all work to be performed as shown in the Contract Documents. All work not identified with a specific pay item is to be considered required work to complete the project, and is to be subsidiary to the cost of project pay items provided.

SUMMARY OF WORK

100-2.1 SUPERVISION AND ATTENDANCE. Provide a resident field superintendent who has had a minimum of four years previous successful experience on projects of comparable sizes and complexity. The Superintendent shall be present at all times that work under this division is being installed or affected. The Superintendent shall have passed a proctored Journeyman Electricians exam with 75% grade or better and shall be a licensed Journeyman Electrician, by the City and/or County in which the project is located. A resume' of the superintendent's experience shall be submitted to Engineer before starting work. At least one member of the electrical contracting firm shall hold a State Master Certificate of Competency.

100-2.2 RECORD DOCUMENTS. The Contractor shall maintain the Contract Documents, Shop Drawings and samples at the site, in good order and annotated daily to show all changes made during the construction process. These shall be available to the Engineer for examination.

100-2.3 SAFETY AND PROTECTION. The Contractor shall be solely and completely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work. The Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

a. All employees on the work site and other persons (including but not limited to the general public) who may be affected thereby,

b. All the work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and

c. Other property at the site, adjacent thereto, or utilized including but not limited to trees, shrubs, lawns, walks, pavements, structures, underground facilities, and other utilities not designated for removal, relocation or replacement in the course of construction regardless of whether or not such other property is indicated in the Contract Documents.

The Contractor shall comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss.

All hoisting machinery shall be inspected by a competent person or by a government or private agency recognized by the U.S. Department of Labor. A copy of this written inspection report shall be submitted to the Resident Engineer prior to the start of work requiring the use of this equipment.

The installation and/or removal of lighting equipment may be critical to airport operations; therefore, the Contractor shall follow work schedules established in the plans and specifications or as directed by the Resident Engineer. Temporary airfield lighting shall comply with Item L-104 and as directed by the Resident Engineer.

Provide all Safety Rails as required in the performance of the work in accordance with all local, state and federal regulations. Maintain safety rails during the duration of the work for this Contract. Remove and replace any safety rail, installation of temporary barricades, during the work, other required safety measures and replacement of any safety rail necessary for the installation of equipment or materials provided in this work.

Powder-actuated fasteners will not be allowed without express written approval of the Engineer. No fasteners shall pierce the structure until approved by the Engineer.

Clean up of scrap materials and waste of this Contractor to be completed daily.

100-2.4 ENGINEERING INSPECTIONS. Items noted by Architect, Owner, Resident Engineer or their representative during construction and before final acceptance, which do not comply with the Contract Documents will be listed in accordance with the general conditions. These items will be sent to the Contractor for action. The Contractor shall have these items corrected.

Items noted after acceptance during the guarantee period shall be checked by the Contractor in the same manner as above.

100-2.5 EXISTING CONDITIONS. Investigate site thoroughly and reroute all conduit and wiring in area of new construction in order to maintain continuity of existing circuitry. Existing conduit shown on plans, shows approximate locations only. Contractor must verify and coordinate existing site conduits and piping. The Bids shall include hand digging within 5 feet of all subsurface utilities and all required rerouting in areas of existing conduits and/or pipes, etc.

Check site and existing conditions thoroughly before bidding. Advise Engineer of discrepancies or questions noted.

Special attention is called to the fact that work involved is in connection with existing systems/facilities which must remain in operation while work is being performed. Work must be done in accordance with the approved schedule, as required by the Contract Documents. Schedule work for a minimum outage to the Owner. Request written permission and receive written approval from Owner/Resident Engineer a minimum of 72 hours in advance of any shut-down of existing system. Perform work required at other than standard working hours where outages cannot be approved during regular working hours. Protect existing buildings and equipment during construction, as required.

If any difference is discovered between the existing conditions and the drawings or specifications, the Engineer shall be notified in writing immediately.

100-2.6 SYSTEMS GUARANTEE. The work required under this division shall include a one (1) year guarantee unless required otherwise by these specifications. This guarantee shall be by the Contractor to the Owner for replacement of any defective workmanship or material which has been furnished under this

contract for a period of one year (1) from the date of substantial completion of the system. This guarantee shall not include light bulbs in service after one (1) month from date of substantial completion of the system. This guarantee shall include all materials, labor, transportation and incidentals for complete replacement of the defective item or items at no additional cost to the Owner. Explain the provisions of guarantee to the Owner at the "Demonstration of Completed System."

100-2.7 SUBSTANTIAL COMPLETION. All specified work shall be complete prior to final observation of work, and all forms and other information requested, including maintenance manuals, shall be submitted to the Engineer for approval one (1) week before the request for substantial completion of the work.

100-2.8 CONTRACTORS RESPONSIBILITIES. Provide necessary layout, labor, material, equipment, tools, transportation, full time supervision and services required for the satisfactory and timely completion of the work in accordance with the Contract Documents.

Unload, store, protect and re-handle the materials required for this Contract until such time that material is in place. Provide protection of materials required of this Contract after installation.

Provide all required transportation, erection, maintenance, dismantling and removal of temporary facilities and equipment required by this Contract.

Provide all transportation, unloading, distribution, hoisting, rigging, material handling and scaffolding required to install the work of this Contract.

Provide all engineering and layout required to perform the work from established base lines and bench marks provided by others.

Provide temporary electrical power and temporary water and sanitary sewer for this Contractor's field office, if required. Pay all utility company charges. Provide temporary power required for this Contractor's work.

Prior to start of work, this Contractor is to inspect work performed by others which this work is to be placed on or adjacent to, and report in writing to the Engineer, any condition found to be unacceptable. Failure to make said report shall constitute acceptance of the conditions found and any claims made thereafter due to the unacceptable conditions will not be considered by the Engineer.

Provide all required coordination and supervision where work connects to or is affected by work of others, and comply with all requirements affecting this work. Work required under other sections, specifications or drawings to be performed by this section shall be coordinated with the respective Contractor, and such work performed at no additional cost to the Owner.

Provide and pay for all permits, licenses, fees and inspections required for the performance of the work. The Contractor shall pay all sales, consumer, use and other taxes required to be paid in accordance with the law of the place of the project.

Provide all tests as required, per the Drawings and Specifications and submit all test reports to the Engineer.

Provide sleeves for all conduit required as specified.

Protect all work of this Contract from damage and intrusion of dirt and foreign objects. Close off open ends of conduit and sleeves on work which is to be completed at a later date. Remove closure material prior to continuance of work.

Prior to Final Inspection, submit to the Engineer, all Record Drawings and Operation and Maintenance Manuals as specified. Instruct Owner's maintenance personnel in the operation and maintenance of the systems as required by the Specifications.

100-2.9 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS. Should anything necessary for the clear understanding of the electrical work be omitted from the Contract Documents, or should the requirements appear to be in conflict, the Contractor shall secure written instructions from the Engineer before proceeding with the work affected thereby; otherwise the Contractor will be deemed to be proceeding at his own risk and expense. It is understood and agreed that the work shall be performed according to the true intent of the Contract Documents.

BASIC MATERIAL & METHODS

100-3.1 REQUIREMENTS OF BASIC MATERIALS AND METHODS. The work shall include the furnishing of the systems, equipment and material specified in this Item and as called for on the drawings, to include: supervision, operations, methods and labor for the fabrication, installation, start-up and tests for the complete electrical installation. Provide the necessary intertrade/Contractor coordination for the installation to be in a neat and work person like manner.

Drawings for the work are diagrammatic, intended to convey the Scope of the Work and to indicate the general arrangement and locations of the work. The drawings shall not be scaled for exact sizes or locations. Because of the scale of the drawings, certain basic items such as: conduit fittings, access panels, sleeves, pull and junction boxes may not be shown. Where such items are required by Code or by other sections or where they are required for proper installation of the work, such items shall be included. Coordinate final equipment locations with governing architectural, civil and structural drawings. Layout equipment before installation so that all trades may install equipment in the space available.

Equipment Specifications may not deal with minute items such as components, parts, controls and devices which may be required to produce the equipment performance specified or as required to meet the equipment warranties. Where such items are required, they shall be included by this Contractor/Supplier of the equipment, whether or not specifically called for.

Conduit routing that interferes with other construction shall not constitute a reason for an extra charge. Equipment, conduit, and fixtures shall fit into available spaces. Equipment that requires servicing shall be readily accessible.

Locate all openings required for work performed under this section. Provide sleeves, guards or other approved methods to allow passage of items installed under this section.

Keep cutting and patching to a minimum. Insofar as possible, determine in advance the proper chase size and openings necessary for the work.

Where cutting and patching are required due to an error of the Contractor, or where the Contractor has not given enough advance notice of the need for holes, recesses, and chases, patching shall be performed by those trades skilled in the use of the materials involved and shall be done at the Contractor's expense.

Any cutting of work in place shall be patched and decorated by such mechanics and in such a manner that the quality of workmanship and finish shall be compatible with that of adjacent construction.

The drawings and specifications describe specific sizes of conduits, conductors, and other items of wiring equipment. These sizes are based on specific items of power consuming equipment. Wherever the contractor

provides power consuming equipment which differs from drawings and specifications, the wiring and associated circuit components for such equipment shall be changed to proper sizes to match at no additional expense to the Owner. In no case shall the cable or conduit size be reduced without written permission from the Engineer. Any and all changes shall be recorded on the Record Drawings.

All materials utilized shall be suitable for the environment encountered. No combination of materials shall be used that forms an electrolytic coupling of such nature that in the presence of moisture corrosion is accelerated.

Make electrical connections to equipment, at locations as indicated with approximately 3 feet (12" minimum) of Sealtight flexible conduit. The sealtight electrical conduit shall utilize strain relief type connectors by adding a T&B wire mesh grip, WMG-LT series, or approval equal to each sealtight connector. Determine the requirements from the Contract Documents and the approved manufacturer drawings.

Provide inserts and anchor bolts as necessary for all work called for under these specifications.

All conduits shall contain one copper grounding conductor, in accordance with NFPA 70, NEC Article 250. #6 AWG and smaller shall have green insulation. #4 AWG and larger shall be bare. The only exception is the 5KV airfield lighting conduits and ductbanks.

All galvanized materials shall be hot-dip galvanized after fabrication, conforming to ASTM A-123, unless noted otherwise (UNO).

All bolted connections and equipment mountings shall utilize a flat washer, lock washer and hex head A-325 bolting hardware, UNO.

Unless noted otherwise, all wire sizes are based on a 75 Deg. C., XHHW 600 volt insulation, copper conductors, not more than three single insulated conductors, in raceway, in free air. The conduit sizes are based on the use of XHHW 600 volt insulated conductors. The Contractor shall make the necessary increase in conduit sizes for other types of wire insulation. In no case shall the conduit size be reduced. The minimum wire size shall be #12 AWG, UNO.

All electrical conductors shall be high conductivity (98% conductivity) copper.

100-3.2 ELECTRICAL REFERENCE SYMBOLS. Symbols used on the plans are defined in the Electrical Legend on the Drawings. Not necessarily will all symbols scheduled be applicable to the project.

100-3.3 ACTIVE SERVICES. Existing active services, i.e., water, gas, sewer, electric, when encountered, shall be protected against damage. Do not prevent or disturb operation of active services which are to remain. If active services are encountered which require relocation, make request to authorities with jurisdiction for determination of procedures. Where existing services are to be abandoned, they shall be terminated in conformance with requirements of the Utility or Municipality or Authority having jurisdiction.

100-3.4 CODES AND FEES. Install in accordance with latest edition of FAA Advisory Circulars, the National Electrical Code and the regulations of governing Federal, State, County, local and other applicable codes, including the Utilities Company. Where a conflict in code requirements occurs the most stringent requirement shall govern. The Contractor shall be responsible and pay all required licenses, fees and inspections including meter installation fee. The cost for such shall be included in the bid price.

The work shall meet the requirements and recommendations of applicable portions of the latest editions of these standards:

a. National Electrical Code (NFPA 70)

b. Life Safety Code (NFPA 101)

c. Applicable Local Building Code

d. National Electrical Safety Code (ANSI C2)

e. NEMA Standards (NEMA)

f. Underwriter's Laboratories (UL)

g. Institute of Electrical and Electronics Engineers (IEEE)

h. Certified Ballast Manufactures (CBM)

i. Lightning Protection Code NFPA 780 and UL 96A

j. AWS D1.1

k. Federal Aviation Administration Circulars (AC)

l. ANSI

m. NFPA

n. Kansas City Aviation Department Design Standards.

The above is not all inclusive of applicable codes and standards, but is presented for the Contractors convenience.

100-3.5 STANDARDS. All materials shall be new and free of defects and shall be U.L. listed, bear the U.L. label or be labeled or listed with an approved, nationally recognized Electrical Testing Agency. Where no labeling or listing service is available for certain types of equipment, test data shall be submitted to prove to the Engineer that equipment meets or exceeds available standards. All listed, labeled or approved material shall be used only for the intended purpose.

100-3.6 UTILITY COMPANY FEES, CHARGES, COSTS. It is the Contractor's responsibility to contact the applicable Utility Company(s) to determine if any fees, charges or costs will be due the Utility Company(s) as required by the Utility Company(s) for temporary power, installations, hook-ups, etc. This fee, charge or cost shall be included in this Contractor's bid price.

100-3.7 TESTS. Systems shall be tested and placed in proper working order prior to demonstrating systems to the Owner. Refer to the requirements in each item for other applicable standards.

Testing shall be performed in accordance with the Contract Documents. See Item L-131 and other applicable items.

IDENTIFICATION

100-4.1 LAMINATED PHENOLIC PLASTIC NAMEPLATES. Contractor shall provide nameplates for wiring systems and equipment as indicated on drawings. All nameplates shall have beveled edges and one-half inch (1/2") lettering. If equipment is smaller than ten inches by six inches (10"x 6"), one-quarter inch (1/4") lettering may be used. Smaller lettering may be used with permission of the Engineer.

Nameplates shall be laminated phenolic plastic, black front and back with white core, with lettering etched through the outer covering. White engraved letters on black background. Attach nameplates with 4-40 stainless steel self tapping screws. Where conditions do not warrant piercing the enclosure "LOCTITE" brand adhesive or approved equal may be used with permission of the Engineer.

100-4.2 CONCRETE WORK. Concrete bases and pads for all equipment furnished by this contractor shall be the responsibility of this Contractor, unless noted otherwise.

Contractor shall furnish all equipment anchors or anchor bolts and shall be responsible for their proper installation and accurate location.

100-4.3 WELDING. All welding and weld procedures shall be in accordance with ASW D1.1, Latest Edition. Qualifications of welders and welding operators shall be in accordance with AWS D1.1, Latest Edition. The welder qualification test shall be performed on a 1" A-36 Test Coupon in the 3G and 4G positions. The welder qualification shall be current within 12 months of the work being performed. Weld inspections shall be per the criteria set forth in AWS D1.1 for visual weld inspection.

DESIGNATION OF MATERIALS

100-5.1 CRITERION DESIGNATION OF MATERIALS AND EQUIPMENT. Where a criterion specification is designated for any material or equipment to be installed by the name or catalog number of one specific manufacturer, such designation is intended only for the purpose of establishing the style, quality, performance characteristics, etc., and is not intended to limit acceptability of competitive products. Products of other manufacturers which are approved by the Engineer as similar and equal will be equally acceptable unless specifically otherwise stated.

Where equipment or materials are specified by the use of the name and catalog number of more than one manufacturer, that equipment or material shall be one of those specified. No alternative will be acceptable.

Where no brand name is specified, the source and quality shall be subject to the Engineer's review and acceptance.

When a product is specified to be in accordance with a trade association or government standard, at the request of Engineer, the Contractor shall furnish a certificate that the product complies with the referenced standard. Upon request of the Engineer, the Contractor shall submit supporting test data to substantiate compliance.

The Engineer shall be the sole judge of whether the proposed "or equal" is suitable for use in the work.

Each Bidder represents their bid is based upon the materials and equipment described in the Contract Documents. Substitutions will not be considered unless a written request has been submitted to the Engineer in accordance with specifications.

PROTECTION OF MATERIALS, EQUIPMENT AND WORK

100-6.1 REQUIREMENT FOR THE PROTECTION OF MATERIALS, EQUIPMENT AND WORK. Materials shall be stored so as to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, shall be subject to reinspection prior to their use in the work. The Contractor shall coordinate the storage of all materials with the Resident Engineer.

Owner-furnished materials, if any, shall be made available to the Contractor at the location specified herein. All costs of handling, transportation from the specified location to the site of the work, storage and installation of Owner-furnished materials shall be included in the Total Contract Price. All risk of loss or damage to Owner-furnished materials shall pass to the Contractor after delivery of said material to the site of the work. The Owner shall be entitled to deduct from any monies due or to become due to the Contractor any cost incurred by the Owner resulting directly or indirectly from a loss caused in whole or in part by the handling, storage or use of Owner-furnished materials.

The Contractor shall protect electrical raceway, cable, lighting fixtures and associated support systems against damage from movement of equipment and material and other construction damage. Damaged materials shall be repaired or replaced, by and at the Contractor's expense, subject to the Engineer's direction and acceptance.

Surfaces of most equipment are finished at the factory. Great care shall be exercised to prevent damage to this original finish during installation of the equipment and during construction work.

If the factory finish is damaged during the course of construction, the entire surface of the damaged component shall be refinished by and at the expense of the Contractor.

The refinished surface shall be equivalent in every respect to the original surface, including color, texture and smoothness. Refinishing paint, if furnished with the equipment, may be used; otherwise, the paint shall be obtained from the equipment manufacturer.

All cut edges of galvanized materials and marred or scratched galvanized surfaces shall be repaired using LPS-1G cold galvanizing compound or approved equal.

All threaded conduit joints shall use T&B Kopr-shield or Aluma-Shield or approved equal for galvanized and aluminum conduits respectively, as joint compound.

GENERAL CONSTRUCTION REQUIREMENTS

100-7.1 ADDITIONAL REQUIREMENTS. Provide the bracing, shoring, rails, guards, and covers necessary to prevent damage or injury. Do not leave energized electrical items unnecessarily exposed or unprotected. Protect personnel from exposure to contact with electricity. Deliver equipment and materials to the job site in their original, unopened, labeled containers. Store ferrous materials so as to prevent rusting. Store finished materials and equipment so as to prevent staining and discoloring.

All sheeting, shoring, dewatering and cleaning necessary to keep trenches and their grades in proper condition for the work to be carried on, including the removal of water by mechanical means, shall be the Contractor's responsibility.

METHOD OF MEASUREMENT

100-8.1 The items described in this section are incidental to other sections and shall not be measured for payment.

BASIS OF PAYMENT

100-9.1 No direct payment shall be made for the work described in this section. The work described in this section is incidental to other items and shall be paid for in the respective bid item of which it is a component part.

END OF ITEM L-100

ITEM L-104 GENERAL ELECTRICAL SAFETY REQUIREMENTS AND TEMPORARY AIRFIELD LIGHTING

DESCRIPTION

104-1.1 PURPOSE. The purpose of this item is to establish the proper safety guidelines necessary to protect aircraft, passengers, crews, the general public, all workers and vehicles involved in their daily tasks.

104-1.2 FAA ADVISORY CIRCULARS. All applicable requirements of the below listed Advisory Circulars, Latest Edition, standards and related reading shall be complied with:

A/C 150/5200-18 Airport Safety Self-Inspection

A/C 150/5210-5 Painting, Marking and Lighting of Vehicles used on an Airport

A/C 150/5340-18 Standards for Airport Sign Systems.

A/C 150/5340-26 Maintenance of Airport Visual Aid Facilities.

A/C 150/5370-2 Operational Safety on Airports during construction.

Occupational Safety and Health Standards for the construction industry 29 CFR Part 1926/1910.

ANSI C2 National Electrical Safety Code.

NFPA 70 National Electrical Code.

NFPA 70E Standard for Electrical Safety Requirements for Employee Work Places.

The Contractor is responsible for obtaining and using the latest edition of the referenced FAA Advisory Circulars and related standards. This list is not all inclusive but is offered as a convenience to the Contractor.

104-1.3 GENERAL SAFETY PROVISIONS. Contractor shall take the required safety and health measures in performing work under this Contract. Meet with the Engineer to develop a mutual understanding relative to administration of the safety plan. Contractor is subject to applicable federal, state and local laws, regulations, ordinances, codes and orders relating to safety and health in effect on the date of this Contract. Attention is invited to the regulations issued by the Secretary of Labor pursuant to the Contract Work Hours and Safety Standards Act and the Safety and Health Regulations for construction. Contractor shall comply with the Secretary's Regulations as applicable and shall comply with specific requirements stated.

As a minimum work place safety shall comply with NFPA 70E Standard for Electrical Safety Requirements for Employee Work Places, OSHA, Federal, State and Local Requirements. Where a conflict in code requirements occurs the most stringent requirement shall govern.

During the performance of work under this Contract, the Contractor shall comply with procedures prescribed for control and safety of persons visiting the project site.

Contractor is responsible for his personnel and for familiarizing each of his subcontractors with safety requirements.

Contractor shall advise the Engineer of any special safety restriction he has established so that Owner personnel can be notified of these restrictions.

104-1.4 FIRE PREVENTION AND PROTECTION. All tools producing sparks or heat, open-flame heating devices, operations utilizing such devices, etc., shall be in accordance with the Local Fire Department and the Owner's Burn Permit procedures. Work shall not start until all requirements of the Burn Permit procedures are met.

Open-flame heating devices will not be permitted except by approval in writing. Such permission will not be granted unless the Contractor has taken reasonable precautions to make such devices safe. Burning trash, brush or wood on the project site will not be permitted. Approval for these of open fires and open-flame heating devices will in no way relieve the Contractor from the responsibility for any damage incurred because of fires.

Flammable liquids shall be stored and handled in accordance with the Flammable and Combustible Liquids Code, NFPA 30.

Open fires and salamanders will not be permitted in construction areas.

Smoking will not be permitted within the Air Operations Area (AOA) and in areas such as paint storage, fuel storage, and posted no smoking areas.

Welding, flame cutting, melting and other such operations in all operating areas, shall not be permitted until approved at the beginning of each work day by the Engineer. The Engineer may approve longer periods of time for welding and burning in some operating areas if the detailed safety procedures are established beforehand. Operating open flame devices shall not be left unattended in any area.

Contractor shall provide the necessary fire fighting equipment and fire prevention methods and, before operations begin, clear all welding and cutting operations with the Engineer.

A contractor's employee shall be assigned as fire watch for every welding and burning operation. He shall be equipped with 2 full 15 pound carbon dioxide fire extinguishers and shall check all areas around and below the welding or burning operation for fires. He shall continue this check for at least 60 minutes after the completion of the welding or burning operation.

Contractor shall discontinue all burning, welding, or cutting operations, one hour prior to the end of the normal work day. Contractor shall provide a workman to remain at the site for one hour after discontinuing these operations. This workman shall make a thorough inspection of the area for possible sources of latent combustion. Any unsafe conditions shall be corrected.

During operations involving possible fire hazard, the Contractor shall notify the Engineer and not proceed until clearance is obtained in writing. The Engineer may request a standby from the Fire Station. However, this does not relieve the Contractor of his responsibility for welding and cutting safety.

104-1.5 TEMPORARY EXITS AND ENTRANCES. Such passageways shall provide adequate fire protection and safety of Owner personnel and representatives.

104-1.6 SWITCHING. Electrical switching required for clearance to work on equipment operating from electrical circuits will be performed only by Owner personnel authorized as safety operators for the specific equipment unless otherwise authorized in writing by the Engineer.

104-1.7 REMOVAL OF EQUIPMENT. When permanently removing equipment, the electrical wiring, conduit and control boxes shall be removed to the source of feed, unless otherwise specified or indicated.

After equipment has been removed, the electrical wiring diagrams, schematics, etc., shall be marked to show the change.

Conduit not removed shall have a pull string installed.

104-1.8 OTHER SAFETY REQUIREMENTS. Temporary wiring shall comply with NEC. Indiscriminate use of extension cords, portable cable or junction boxes creating tripping hazards as well as overloaded circuits will not be permitted.

Unplug portable electrical hand tools when not in use. Inadvertent operation of equipment can take place if it is left plugged into an energized receptacle.

Before maintaining or repairing any electrical equipment, it shall be disconnected from the power source.

Do not use any equipment that has frayed cords or three-wire plugs that have had the grounding prongs removed. Faulty equipment and tools shall be repaired by qualified electrical personnel.

EXCAVATION

104-2.1 EXCAVATION OPERATIONS. Not used.

PROTECTION OF WORK

104-3.1 PROTECTION OF WORK. Provide adequate stand-by mechanical equipment for emergency use.

Excavations shall have substantial barricades and be posted with warning signs for the safety of persons. Warning lights shall be provided during hours of darkness.

Barricades shall be erected immediately around manhole openings when covers are removed or opened.

For personnel safety and to prevent possible interruption of major utility services encountered during excavation, the following procedures shall be followed:

Prior to performing any excavation work or any surface penetrations 6 inches or deeper (such as driving stakes more than 6 inches in the ground) on any ground surface, the Contractor shall obtain from the Engineer, local utilities, etc., the current up-to-date subsurface utility drawing of the particular area to be worked on.

All Agencies/Utilities, etc. that may be affected by the excavating shall be contacted by the Contractor so that all lines, pipes, etc., can be marked/staked.

Stake out all subsurface utilities i.e., high voltage cables, communication cables, pipe lines, etc., indicated within the scope of the work contemplated. All subsurface utilities shall be located by hand digging; hand digging shall extend for 5 feet on both sides of the subsurface utility.

After hand exposure of cable or pipe lines, the Contractor shall obtain agreement from the Engineer, Agency/Utility on how much closer to cable or pipe the excavations can be permitted.

A 3-inch (76 mm) wide red polyethylene film detectable tape, with metalized foil core, printed with the words "CAUTION ELECTRIC LINE BELOW," shall be installed 8 inches below grade over the underground utility. Tape shall be Line Guard, Type II, detectable or approved equal.

Notify the Engineer, 72 hours prior to the start of excavation work or surface penetration, to enable the Engineer to review measures being taken to prevent hazard to employees and to prevent possible damage to subsurface utilities. Where emergency conditions preclude the 72 hours advance notification, Contractor shall nevertheless inform the Engineer of his intention to initiate work.

After all existing utilities have been located and marked or staked, proceed with excavating work, or other surface penetration work. The Contractor however, shall temporarily halt any machine excavation work or other surface penetration when approaching within 5 feet of the staked out subsurface utility until Contractor has hand excavated down to expose the utility to exactly fix its location.

No digging, dirt moving or other heavy equipment shall enter physically any approved construction area before all utilities have been located and properly staked out. It is the Contractor's responsibility to locate all utilities before digging, sawing, coring, boring, etc. Any damage caused by digging, sawing, boring, coring, etc., is the Contractor's responsibility for repair. Any damage must be reported immediately to the Engineer. No repair shall be attempted without approval.

All high voltage cables shall be disconnected before excavation is attempted.

To protect subsurface utilities, provide as a minimum a 1 inch thick steel plate cover over electrical duct, cables and other subsurface utilities when heavy equipment is being used in the area.

The requirements listed above shall be considered incidental to the item for which the excavation is required.

SAFETY TAGGING AND LOCKOUT

104-4.1 SAFETY WITH ELECTRICAL CIRCUITS AND EQUIPMENT. No one may work on an energized circuit without written permission from the Contractor's Project Manager. The Contractor's project manager shall review the circumstances and the necessary safety precautions with the Engineer prior to giving permission for the "hot" work. The Contractor assumes all liability in connection with any work on energized circuits.

No one may disconnect or cause to be disconnected any electrical circuit before permission is requested from and granted by the Electrical Maintenance Manager or authorized representative through the Engineer.

Identification markings on building light and power distribution circuits shall not be relied on for established Safe work conditions. Always verify the proper safe "deenergized" conditions with properly operating test equipment.

Before any circuit supplying radar, ILS, weather, VORTAC, airport beacon, runway/taxiway lighting and signage equipment or any other equipment is disconnected, permission must first be granted by Electrical Maintenance Manager or his authorized representative, and, if applicable, FAA Sector Field Office and the Air Traffic Control Tower.

Work shall not commence on any circuit until:

The circuit is correctly identified in the presence of the Electrical Contractor's Superintendent or Foreman, the Engineer, Airport Electrical Maintenance Manager, or authorized representative.

After identity of the circuit is established, and the circuit disconnected, the time and date shall be recorded by the Engineer.

The switch shall be locked in the open position or opened in a manner which will prevent accidental restoration.

The circuit shall be tagged with an approved red warning tag by the Electrical Contractor's Superintendent. The tag shall state, the Company's name, the Electrician's name responsible for the disconnection, date and time and the project name and bid package number.

Restoration shall be accomplished and tags removed only by the Electrical Contractor's Superintendent in the presence of the Electrical Maintenance Manager, or authorized representative.

The Engineer shall record time, date and operational status of circuit after restoration.

No circuit shall be disconnected or unplugged before color code identification by taping.

No circuit shall be disconnected at power source before proper safety precautions are taken to prevent accidental restoration.

When possible, circuits shall be restored by the same person who disconnected the circuit. When not possible, the Electrical Maintenance Manager or authorized representative shall perform restoration.

As a minimum the Lock/Tag/Try procedure shall comply with NFPA 70E and the Owner's requirements.

TEMPORARY AIRFIELD LIGHTING

104-5.1 TEMPORARY AIRFIELD LIGHTING. Temporary electrical fixtures and conductors are allowable when necessary, but shall be installed as follows:

Temporary lights shall be bolted to the pavement in a manner rendering the light stationary and allowing space for conductors to enter or exit and to be spliced.

When the above is not practical, lights shall be fastened to a weighted object adaptable for the purpose and of sufficient weight to inhibit movement by jet engine blast.

Temporary conductors supplying temporary lights shall be installed in a rigid galvanized steel conduit system and secured every five feet to prevent movement by jet engine blast.

All joints or splices in temporary conductors shall have heat shrink tubing with integral sealant applied to secure mechanical and electrical connection and prevent water entry.

All plug-in connections shall have heat shrink tubing with integral sealant applied to prevent accidental disconnection and shall be color code taped to expedite quick, efficient disconnection and restoration.

Temporary Airfield Lighting and Signage shall conform as closely as possible to permanent locations normally on the taxiway or runway but shall guide aircraft in a safe path away from all possible accident prone areas.

Closed taxiways and runways shall be so marked in a manner acceptable to FAA and the Owner and said marking shall be kept in acceptable condition. This item shall include, at the Engineer's discretion the temporary removal or covering of airfield signage. No tape or adhesives shall be used in the covering of airfield signage or lighting.

CAUTION: The series lighting circuit must always be complete before a regulator is energized. Normal circuit voltage is less than 5,000 volts, open circuit voltage can be more than 10,000 volts. All personnel shall be instructed to protect the integrity of the lighting circuit. Turn off, lock out and tag the constant current regulator at the vault before opening the circuit. Continuity of the circuit shall be checked before the regulator is reconnected and reenergized.

The installation and/or removal of lighting equipment may be critical to airport operations; therefore, the Contractor shall follow work schedules established in the plans and specifications or as directed by the Engineer. The temporary system shall be installed in accordance with the Contract Documents, FAA Advisory Circulars and if applicable the National Electrical Code and/or local code requirements.

The Contractor shall provide temporary wiring as required to reconnect existing airfield lighting and signage to provide guidance for aircraft to pass through the construction areas on those taxiways/runways which must remain open.

It shall be the Contractor's responsibility to determine that all airfield lighting circuits, except those that are serving closed taxiways or runways, are completely operational, using tower controls, at the end of each work shift and shall so certify to the Engineer before leaving the work site. Day shift report of system operation shall be at 4 p.m. Second shift report shall be 1 hour before dark. Any other shift shall report 1 hour prior to the need for airfield lighting or as determined by the Engineer. Should bad weather cause poor visibility the Engineer may require additional status reports of system operability and may call for the operation of the lighting system at any time. In the event of lighting system failure, the Contractor shall immediately take the necessary steps to restore proper operation.

Whenever the scope of work requires connection to an existing circuit, the circuit’s insulation resistance shall be tested, in the presence of the Engineer. This test shall be performed prior to any activity affecting the respective circuit. The Contractor shall record the results on the forms included in Item L-131. When the circuit is returned to its final condition, the circuit’s insulation resistance shall be checked again in the presence of the Engineer. The Contractor shall record the results on the forms included in Item L-131. The second reading shall be equal to or greater than the first reading or the Contractor shall make the necessary repairs, to the circuit, to bring the second reading above the first reading. All repair costs including a complete replacement or the L-823 connectors i.e. superkits, L-830 transformers and L-824 cable, etc. if necessary, shall be borne by the Contractor. All test results shall be submitted in the Operation and Maintenance Manuals. Refer to Division 1, General Requirements.

TEMPORARY AREA LIGHTING

104-6.1 TEMPORARY ELECTRICAL AND LIGHTING INSTALLATION. Temporary electrical and/or lighting fixtures shall be provided in operational areas where required to maintain public safety and continued airport operations.

Temporary lighting must be installed to ANSI/OSHA standards for impacted area.

Temporary installations shall be approved by Electrical Maintenance Manager or authorized representative.

The cost of temporary area/building lighting shall be absorbed in and considered incidental to the various work items.

104-6.2 MISCELLANEOUS REGULATIONS. Draw-out type breakers, regardless of operating voltage must be drawn completely out to open position and tagged and locked out per 104-4.1.

In hazardous locations, regardless of class, all electrical tools and extension cords shall be of a type approved for use in such areas.

No counterpoise conductors (or any other conductors) may be joined, connected, or affixed to any terminal, grounding electrode, or other point or attachment by any method except those approved by the Engineer.

All counterpoise or grounding systems, when severed or damaged, shall be immediately repaired by the Contractor in accordance with Item L-108 and inspected by the Engineer.

No high voltage switch shall be engaged or disengaged under load.

All backhoes, cranes, etc., shall be enclosed by safety pylons or other approved markers and rope festooned between the pylons.

All security gates in use by contractors are the responsibility of the Contractor, and must be used in a fully secure manner. Any damage to a security gate shall be reported immediately to the Engineer.

BASIS OF PAYMENT

104-7.1 No direct payment shall be made for the work described in this section. The work described in this section is incidental to other items and shall be paid for in the respective bid item of which it is a component part.

END OF ITEM L-104

ITEM L-105 ALTERATIONS, REMOVAL AND DEMOLITION

DESCRIPTION

105-1.1 GENERAL. Alterations shall mean any change or rearrangement in the component parts, including structural, mechanical, and electrical systems, or internal or external arrangements of an existing structure.

Removal (demolition) shall mean the dismantling and disposal of existing materials, components, equipment, and utilities. Removed items shall be handled, prepared for storage, transported to storage areas, and/or disposed as specified.

All items designated to be turned over to the Owner shall be properly enclosed or boxed to protect the items from damage and transported to a location on the Owner's property, designated by the Resident Engineer.

The installation and/or removal of lighting equipment may be critical to airport operations; therefore, the Contractor shall follow the work schedule established in the plans and specifications or as directed by the Owner's Authorized Representative. The temporary airfield lighting system shall be installed in accordance with Item L-104.

The Contractor shall provide temporary wiring as required to reconnect existing circuits to provide guidance for aircraft to pass through the construction areas on those taxiways/runways which must remain open.

105-1.2 CONDITION OF EXISTING FACILITIES. The Contractor shall verify the areas, conditions, and features necessary to tie into existing facilities. This verification shall be done prior to submittal of shop drawings, fabrication or erection, construction or installation. The Contractor shall be responsible for the accurate tie-in of the new work to existing facilities.

Special attention is called to the fact that there may be piping, fixtures or other items in the existing systems which must be removed or relocated in order to perform the alteration work. All conduit, wiring, boxes, etc., that do not comply with these specifications shall be removed or corrected to comply with these specifications. All unused ducts or conduit not removed, and in good condition, shall be identified and a pull line shall be installed. Bid shall include all removal and relocation required for completion of the alterations and the new construction.

Whenever the scope of work requires connection to an existing circuit, the circuits insulation resistance shall be tested, in the presence of the ENGINEER. This test shall be performed prior to any activity affecting the respective circuit. Record the results on the forms included in Item L-131. When the circuit is returned to its final condition the circuit insulation resistance shall be checked again in the presence of the ENGINEER. Record the results on the forms included in Item L-131. If the second reading is not equal to or greater than the first reading, make the necessary repairs to the circuit to bring the second reading above the first reading. All repair costs including a complete replacement of the cable terminations, stored equipment, etc., if necessary, shall be provided, at no additional cost to the Owner. All test results shall be submitted in the Operation and Maintenance Manuals. Refer to Division 1, General Requirements.

105-1.3 SAFETY REQUIREMENTS. The Contractor shall conduct alterations and removal operations in a manner that will ensure the safety of persons in accordance with the requirements of CFR 29 PART 1926/1910.

105-1.4 CLASSIFICATION OF REMOVED/DEMOLISHED ITEMS. Existing materials and equipment indicated to be removed/demolished will be classified as "salvageable" and shall remain the property of the Owner or will be classified as "debris" and shall be disposed.

Reused salvaged items:

Salvaged materials and equipment shall be reused in the work only in construction of temporary electrical facilities, unless noted otherwise.

Items classified as debris shall be legally disposed of off the owner's property. The cost of such disposal shall be included in the bid price.

Retained salvaged items:

Salvaged materials and equipment to be retained by the Owner but not reused in the work shall be properly boxed/crated, protected from damage and turned over to the Owner.

105-1.5 TEMPORARY PROTECTION. Contractor shall provide and maintain the following requirements.

Protection of persons and property shall be provided throughout the progress of the work in accordance with these specifications.

In areas of jet blasts, temporary structures shall withstand the jet blast with a safety factor of 2.

EXECUTION

105-2.1 DISCONNECTING UTILITIES. Prior to the start of work, if required, the affected utilities serving each area of alteration or removal will be shut off by the Owner. Disconnect and seal the affected utilities as required. Lockout/Tag/Try procedure shall meet the requirements of Item L-104.

105-2.2 TEMPORARY UTILITY SERVICES. Contractor shall install temporary utility services in satisfactory operating condition before disconnecting existing utilities. Such temporary services shall be maintained during the period of construction and removed only after new permanent services have been tested and are in operation.

105-2.3 REMOVAL WORK. The Contractor shall not disturb the existing construction beyond that indicated or necessary for installation of new work. Temporary shoring and bracing for support of building components to prevent settlement or other movement shall be as indicated and as required to protect the work.

The Contractor shall provide protective measures to control accumulation and migration of dust and dirt in all areas of work, particularly those adjacent to occupied areas. The Contractor shall remove dust, dirt, and debris from the areas of work daily.

105-2.4 SALVAGEABLE MATERIALS AND EQUIPMENT. The Contractor shall remove all salvageable materials and equipment in a manner that will cause the least possible damage thereto. Removed items which are to be retained by the Owner shall be carefully handled, stored, and protected.

The Contractor shall provide identification tags on all items boxed or placed in containers, indicating the type, size, and quantity of materials.

DEMOLITION

105-3.1 MAINTAINING TRAFFIC. Demolition operations and removal of debris to disposal areas shall be conducted to ensure minimum interference with runways, taxiways, aprons, roads, streets, walks, and other facilities occupied and used by the Owner.

Streets, walks, runways, taxiways and other facilities occupied and used by the Owner shall not be closed or obstructed without written permission.

105-3.2 REFERENCE STANDARDS REQUIREMENTS. Demolition operations shall be conducted to ensure the safety of persons in accordance with ANSI A 10.6 Safety Requirements for Demolition.

DISPOSAL OF REMOVED MATERIALS

105-4.1 GENERAL. The Contractor shall dispose of debris, rubbish, scrap, and other non-salvageable materials resulting from removal operations. Removed materials shall not be stored or disposed of on the project site.

105-4.2 REMOVAL FROM OWNER PROPERTY. Materials classified as debris shall be transported from Owner property and legally disposed at no additional cost to the Owner. Permits and fees for disposal shall be paid by the Contractor.

ALTERATION WORK

105-5.1 GENERAL. Cutting, patching, repairing, and other alteration work shall be done by mechanics skilled in the particular trade or work required.

Where required to patch or extend existing construction, or both, such alteration work shall match existing materials in finish, color, texture, pattern, quality, strength and function.

Salvaged items for reuse shall be as approved by the Engineer.

BASIS OF PAYMENT

105-6.1 No direct payment shall be made for the work described in this section. The work described in this section is incidental to other items and shall be paid for in the respective bid item of which it is a component part

END OF ITEM L-105

ITEM L-108 UNDERGROUND POWER CABLE FOR AIRPORTS

DESCRIPTION

108-1.1 This item shall consist of furnishing and installing power cables that are direct buried and furnishing and/or installing power cables within conduit or duct banks per these specifications at the locations shown on the plans. It includes excavation and backfill of trench for direct-buried cables only. Also included are the installation of counterpoise wires, ground wires, ground rods and connections, cable splicing, cable marking, cable testing, and all incidentals necessary to place the cable in operating condition as a completed unit to the satisfaction of the Engineer. This item shall not include the installation of duct banks or conduit, trenching and backfilling for duct banks or conduit, or furnishing or installation of cable for FAA owned/operated facilities. Requirements and payment for trenching and backfilling for the installation of underground conduit and duct banks is in Item L-110, Airport Underground Electrical Duct Banks and Conduits.

EQUIPMENT AND MATERIALS

108-2.1 GENERAL.

a. Airport lighting equipment and materials covered by advisory circulars (AC) shall be approved under the Airport Lighting Equipment Certification Program per AC 150/5345-53, current version.

b. All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification, when requested by the Engineer.

c. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications. Materials supplied and/or installed that do not comply with these specifications shall be removed (when directed by the Engineer) and replaced with materials that comply with these specifications at the Contractor's cost.

d. All materials and equipment used to construct this item shall be submitted to the Engineer for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete any non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment to which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in the project that may accrue directly or indirectly from late submissions or resubmissions of submittals.

e. The data submitted shall be sufficient, in the opinion of the Engineer, to determine compliance with the plans and specifications. The Contractor's submittals shall be electronically submitted in PDF format, tabbed by specification section. The Engineer reserves the right to reject any and all equipment, materials, or procedures that do not meet the system design and the standards and codes, specified in this document.

f. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for at least twelve (12) months from the date of final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner. The Contractor shall be responsible to maintain a minimum insulation resistance per AC 150/5340-26, Maintenance Airport Visual Aid Facilities, Table 5-1 and paragraph 5.1.3.1, with isolation transformers connected in new circuits and new segments of existing circuits through the end of the contract warranty period.

g. Documentation certifying compliance with the BUY AMERICAN preference rules for Airport Improvement Program (AIP) cited in 49 USC Sec 50101) shall be included with each equipment and material.

108-2.2 CABLE. Underground cable for airfield lighting facilities (runway and taxiway lights and signs) shall conform to the requirements of AC 150/5345-7, Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits latest edition. Conductors for use on 6.6 ampere primary airfield lighting series circuits shall be single conductor, seven strand, #8 American wire gauge AWG), L-824 Type C, 5,000 volts, nonshielded, with cross-linked polyethylene insulation. Conductors for use on 20 ampere primary airfield lighting series circuits shall be single conductor, seven strand, #6 AWG, L-824 Type C, 5,000 volts, nonshielded, with cross- linked polyethylene insulation. L-824 conductors for use on the L-830 secondary of airfield lighting series circuits shall be sized in accordance with the manufacturer's recommendations.

All other conductors shall comply with FAA and National Electric Code (NEC) requirements. Conductor sizes noted above shall not apply to leads furnished by manufacturers on airfield lighting transformers and fixtures.

Wire for electrical circuits up to 600 volts shall comply with Specification L-824 and/or Commercial Item Description A-A-59544A and shall be type THWN-2, 75°C. Conductors for parallel (voltage) circuits shall be sized and installed in accordance with NFPA-70, National Electrical Code.

Unless noted otherwise, all 600-volt and less non-airfield lighting conductor sizes are based on a 75°C, THWN-2, 600-volt insulation, copper conductors, not more than three single insulated conductors, in raceway, in free air. The conduit/duct sizes are based on the use of THWN-2, 600-volt insulated conductors. The Contractor shall make the necessary increase in conduit/duct sizes for other types of wire insulation. In no case shall the conduit/duct size be reduced. The minimum power circuit wire size shall be #12 AWG.

Conductor sizes may have been adjusted due to voltage drop or other engineering considerations. Equipment provided by the Contractor shall be capable of accepting the quantity and sizes of conductors shown in the Contract Documents. All conductors, pigtails, cable step-down adapters, cable step-up adapters, terminal blocks and splicing materials necessary to complete the cable termination/splice shall be considered incidental to the respective pay items provided.

Cable type, size, number of conductors, strand and service voltage shall be as specified in the Contract Document.

108-2.3 BARE COPPER WIRE (Bare Copper Wire Ground and Ground Rods). Wire for ground installations for airfield lighting systems shall be No. 6 AWG insulated stranded for ground wire per ASTM B3 and ASTM B8, and shall be tinned copper wire per ASTM B33. See AC 150/5340-30 for additional details about ground wire types and installation. For voltage powered

circuits, the equipment ground conductor shall be minimum No. 6 AWG, 600V rated, Type XHHW insulated, green color, stranded copper equipment ground conductor.

Ground rods shall be copper. The ground rods shall be of the length and diameter specified on the plans, but in no case be less than 8 feet long and 5/8 inch diameter.

108-2.4 CABLE CONNECTIONS. In-line connections or splices of underground primary cables shall be of the type called for on the plans, and shall be one of the types listed below. No separate payment will be made for cable connections.

a. **The Cast Splice**. A cast splice, employing a plastic mold and using epoxy resin equivalent to that manufactured by 3MTM Company, "Scotchcast" Kit No. 82-B, or as manufactured by Hysol® Corporation, "Hyseal Epoxy Splice" Kit No. E1135, or an approved equivalent, used for potting the splice is acceptable.

b. **The Field-Attached Plug-In Splice.** Figure 3 of AC 150/5345-26, Specification for L-823 Plug and Receptacle, Cable Connectors, employing connector kits, is acceptable for field attachment to single conductor cable. It shall be the Contractor's responsibility to determine the outside diameter of the cable to be spliced and to furnish appropriately sized connector kits and/or adapters and heat shrink tubing with integral sealant.

c. **The Factory-Molded Plug-In Splice.** Specification for L-823 Connectors, Factory-Molded to Individual Conductors, is acceptable.

d. **The taped or heat-shrink splice.** Taped splices employing field-applied rubber, or synthetic rubber tape covered with plastic tape is acceptable. The rubber tape should meet the requirements of ASTM D4388 and the plastic tape should comply with Military Specification MIL-I-24391 or Commercial Item Description A-A-55809. Heat shrinkable tubing shall be heavy-wall, self-sealing tubing rated for the voltage of the wire being spliced and suitable for direct-buried installations. The tubing shall be factory coated with a thermoplastic adhesive-sealant that will adhere to the insulation of the wire being spliced forming a moisture- and dirt-proof seal. Additionally, heat shrinkable tubing for multi-conductor cables, shielded cables, and armored cables shall be factory kits that are designed for the application. Heat shrinkable tubing and tubing kits shall be manufactured by Tyco Electronics/ Raychem Corporation, Energy Division, or approved equivalent.

In all the above cases, connections of cable conductors shall be made using crimp connectors using a crimping tool designed to make a complete crimp before the tool can be removed. All L-823/L-824 splices and terminations shall be made per the manufacturer's recommendations and listings.

All connections of counterpoise, grounding conductors and ground rods shall be made by the exothermic process or approved equivalent, except that a light base ground clamp connector shall be used for attachment to the light base. See AC 150/5340-30 for additional information about methods of attaching a ground to a galvanized light base. All exothermic connections shall be made per the manufacturer's recommendations and listings.

108-2.5 SPLICER QUALIFICATIONS. Every airfield lighting cable splicer shall be qualified in making airport cable splices and terminations on cables rated at or above 5,000 volts AC. The Contractor shall submit to the Engineer proof of the qualifications of each proposed cable splicer for the airport cable type and voltage level to be worked on. Cable splicing/terminating personnel shall have a minimum of three (3) years continuous experience in terminating/splicing medium voltage cable.

108-2.6 FLOWABLE BACKFILL. Flowable material used to backfill trenches for power cable trenches shall conform to the requirements of Item P-153, Controlled Low Strength Material.

108-2.7 CABLE IDENTIFICATION TAGS. Cable identification tags shall be made from a non-corrosive material with the circuit identification stamped or etched onto the tag. The tags shall be of the type as detailed on the plans.

108-2.8 TAPE. Electrical tapes shall be Scotch Electrical Tapes –Scotch 88 (1-1/2 inch (38 mm) wide) and Scotch 130C linerless rubber splicing tape (2-inch (50 mm) wide), as manufactured by the Minnesota Mining and Manufacturing Company (3M), or an approved equivalent.

108-2.9 ELECTRICAL COATING. Electrical coating shall be Scotchkote™ as manufactured by 3M, or an approved equivalent.

108-2.10 EXISTING CIRCUITS. Whenever the scope of work requires connection to an existing circuit, the circuit's insulation resistance shall be tested, in the presence of the Engineer. The test shall be performed per this item and prior to any activity that will affect the respective circuit. The Contractor shall record the results on forms acceptable to the Engineer. When the work affecting the circuit is complete, the circuit's insulation resistance shall be checked again, in the presence of the Engineer. The Contractor shall record the results on forms acceptable to the Engineer. The second reading shall be equal to or greater than the first reading or the Contractor shall make the necessary repairs to the circuit to bring the second reading above the first reading. All repair costs including a complete replacement of the L-823 connectors, L-830 transformers and L-824 cable, if necessary, shall be borne by the Contractor. All test results shall be submitted in the Operation and Maintenance (O&M) Manual. See AC 150/5340-26C, Maintenance of Airport Visual Aid Facilities, for standard and alternative methods, and safety practices for measuring insulation resistance.

108-2.11 DETECTABLE WARNING TAPE. Plastic, detectable, American Public Works Association (AWPA) Red (electrical power lines, cables, conduit and lighting cable) with continuous legend magnetic tape shall be polyethylene film with a metalized foil core and shall be 3 inches (75 mm) wide. Detectable tape is incidental to the respective bid item.

CONSTRUCTION METHODS

108-3.1 GENERAL. The Contractor shall install the specified cable at the approximate locations indicated on the plans. Unless otherwise shown on the plans, all cable required to cross under pavements expected to carry aircraft loads shall be installed in concrete encased duct banks. Wherever possible, cable shall be run without splices, from connection to connection.

Cable connections between lights will be permitted only at the light locations for connecting the underground cable to the primary leads of the individual isolation transformers. The Contractor shall be responsible for providing cable in continuous lengths for home runs or other long cable runs without connections unless otherwise authorized in writing by the Engineer or shown on the plans.

In addition to connectors being installed at individual isolation transformers, L-823 cable connectors for maintenance and test points shall be installed at locations shown on the plans. Cable circuit identification markers shall be installed on both sides of the L-823 connectors installed or at least once in each access point where L-823 connectors are not installed.

Provide not less than 3 feet (1 m) of cable slack on each side of all connections, isolation transformers, light units, and at points where cable is connected to field equipment. Where provisions must be made

for testing or for future above grade connections, provide enough slack to allow the cable to be extended at least one foot (30 cm) vertically above the top of the access structure. This requirement also applies where primary cable passes through empty light bases, junction boxes, and access structures to allow for future connections, or as designated by the Engineer.

Primary airfield lighting cables installed shall have cable circuit identification markers attached on both sides of each L-823 connector and on each airport lighting cable entering or leaving cable access points, such as manholes, hand holes, pull boxes, junction boxes, etc. Markers shall be of sufficient length for imprinting the cable circuit identification legend on one line, using letters not less than 1/4 inch (6 mm) in size. The cable circuit identification shall match the circuits noted on the construction plans.

108-3.2 INSTALLATION IN DUCT BANKS OR CONDUITS. This item includes the installation of the cable in duct banks or conduit per the following paragraphs. The maximum number and voltage ratings of cables installed in each single duct or conduit, and the current-carrying capacity of each cable shall be per the latest version of the National Electric Code, or the code of the local agency or authority having jurisdiction.

The Contractor shall make no connections or splices of any kind in cables installed in conduits or duct banks.

Unless otherwise designated in the plans, where ducts are in tiers, use the lowest ducts to receive the cable first, with spare ducts left in the upper levels. Check duct routes prior to construction to obtain assurance that the shortest routes are selected and that any potential interference is avoided.

Duct banks or conduits shall be installed as a separate item per Item L-110, Airport Underground Electrical Duct Banks and Conduit. The Contractor shall run a mandrel through duct banks or conduit prior to installation of cable to ensure that the duct bank or conduit is open, continuous and clear of debris. The mandrel size shall be compatible with the conduit size. The Contractor shall swab out all conduits/ducts and clean light bases, manholes, etc., interiors immediately prior to pulling cable. Once cleaned and swabbed, the light bases and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, light bases, manholes, etc., is incidental to the pay item of the item being cleaned. All raceway systems left open, after initial cleaning, for any reason shall be re-cleaned at the Contractor's expense. The Contractor shall verify existing ducts proposed for use in this project as clear and open. The Contractor shall notify the Engineer of any blockage in the existing ducts.

The cable shall be installed in a manner that prevents harmful stretching of the conductor, damage to the insulation, or damage to the outer protective covering. The ends of all cables shall be sealed with moisture-seal tape providing moisture-tight mechanical protection with minimum bulk, or alternately, heat shrinkable tubing before pulling into the conduit and it shall be left sealed until connections are made. Where more than one cable is to be installed in a conduit, all cable shall be pulled in the conduit at the same time. The pulling of a cable through duct banks or conduits may be accomplished by hand winch or power winch with the use of cable grips or pulling eyes. Maximum pulling tensions shall not exceed the cable manufacturer's recommendations. A non-hardening cable-pulling lubricant recommended for the type of cable being installed shall be used where required.

The Contractor shall submit the recommended pulling tension values to the Engineer prior to any cable installation. If required by the Engineer, pulling tension values for cable pulls shall be monitored by a dynamometer in the presence of the Engineer. Cable pull tensions shall be recorded by the Contractor and reviewed by the Engineer. Cables exceeding the maximum allowable pulling tension values shall

be removed and replaced by the Contractor at the Contractor's expense.

The manufacturer's minimum bend radius or NEC requirements (whichever is more restrictive) shall apply. Cable installation, handling and storage shall be per manufacturer's recommendations. During cold weather, particular attention shall be paid to the manufacturer's minimum installation temperature. Cable shall not be installed when the temperature is at or below the manufacturer's minimum installation temperature. At the Contractor's option, the Contractor may submit a plan, for review by the Engineer, for heated storage of the cable and maintenance of an acceptable cable temperature during installation when temperatures are below the manufacturer's minimum cable installation temperature.

Cable shall not be dragged across base can or manhole edges, pavement or earth. When cable must be coiled, lay cable out on a canvas tarp or use other appropriate means to prevent abrasion to the cable jacket.

108-3.3 SPLICING. Connections of the type shown on the plans shall be made by experienced personnel regularly engaged in this type of work and shall be made as follows:

a. **Cast Splices.** These shall be made by using crimp connectors for jointing conductors. Molds shall be assembled, and the compound shall be mixed and poured per the manufacturer's instructions and to the satisfaction of the Engineer.

b. **Field-Attached Plug-In Splices.** These shall be assembled per the manufacturer's instructions. These splices shall be made by plugging directly into mating connectors. In all cases the joint where the connectors come together shall be wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-1/2 inches (38 mm) on each side of the joint.

c. **Factory-Molded Plug-In Splices.** These shall be made by plugging directly into mating connectors. In all cases, the joint where the connectors come together shall be wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-1/2 inches (38 mm) on each side of the joint.

d. **Taped or heat-shrink splices.** A taped splice shall be made in the following manner: Bring the cables to their final position and cut so that the conductors will butt. Remove insulation and jacket allowing for bare conductor of proper length to fit compression sleeve connector with 1/4 inch (6 mm) of bare conductor on each side of the connector. Prior to splicing, the two ends of the cable insulation shall be penciled using a tool designed specifically for this purpose and for cable size and type. Do not use emery paper on splicing operation since it contains metallic particles. The copper conductors shall be thoroughly cleaned. Join the conductors by inserting them equidistant into the compression connection sleeve. Crimp conductors firmly in place with crimping tool that requires a complete crimp before tool can be removed. Test the crimped connection by pulling on the cable. Scrape the insulation to assure that the entire surface over which the tape will be applied (plus 3 inches (75 mm) on each end) is clean. After scraping, wipe the entire area with a clean lint-free cloth. Do not use solvents.

Apply high-voltage rubber tape one-half lapped over bare conductor. This tape should be tensioned as recommended by the manufacturer. Voids in the connector area may be eliminated by highly elongating the tape, stretching it just short of its breaking point. The manufacturer's recommendation for stretching tape during splicing shall be followed. Always attempt to exactly half-lap to produce a uniform buildup. Continue buildup to 1-1/2 times cable diameter over the body of the splice with ends tapered a distance of approximately one inch (25 mm) over the original jacket. Cover rubber tape with two layers of vinyl pressure-sensitive tape one-half lapped. Do not use glyptol or lacquer over vinyl tape as they react as solvents to the tape. No further cable covering or splice boxes are required.

Heat shrinkable tubing shall be installed following manufacturer's instructions. Direct flame heating shall not be permitted unless recommended by the manufacturer. Cable surfaces within the limits of the heat-shrink application shall be clean and free of contaminates prior to application.

e. **Assembly.** Surfaces of equipment or conductors being terminated or connected shall be prepared in accordance with industry standard practice and manufacturer's recommendations. All surfaces to be connected shall be thoroughly cleaned to remove all dirt, grease, oxides, nonconductive films, or other foreign material. Paints and other nonconductive coatings shall be removed to expose base metal. Clean all surfaces at least 1/4 inch (6.4 mm) beyond all sides of the larger bonded area on all mating surfaces. Use a joint compound suitable for the materials used in the connection. Repair painted/coated surface to original condition after completing the connection.

108-3.4 TESTING. The Contractor shall furnish all necessary equipment and appliances for testing the airport electrical systems and underground cable circuits before and after installation. The Contractor shall perform all tests in the presence of the Engineer. The Contractor shall demonstrate the electrical characteristics to the satisfaction of the Engineer. All costs for testing are incidental to the respective item being tested. For phased projects, the tests must be completed by phase. The Contractor must maintain the test results throughout the entire project as well as during the warranty period that meet the following:

Earth resistance testing methods shall be submitted to the Engineer for approval. Earth resistance testing results shall be recorded on an approved form and testing shall be performed in the presence of the Engineer. All such testing shall be at the sole expense of the Contractor.

Should the counterpoise or ground grid conductors be damaged or suspected of being damaged by construction activities the Contractor shall test the conductors for continuity with a low resistance ohmmeter. The conductors shall be isolated such that no parallel path exists and tested for continuity. The Engineer shall approve of the test method selected. All such testing shall be at the sole expense of the Contractor.

After installation, the Contractor shall test and demonstrate to the satisfaction of the Engineer the following:

a. That all affected lighting power and control circuits (existing and new) are continuous and free from short circuits.

b. That all affected circuits (existing and new) are free from unspecified grounds.

c. That the insulation resistance to ground of all new non-grounded high voltage series circuits or cable segments is not less than 50 megohms.

d. That the insulation resistance to ground of all new non-grounded conductors of new multiple circuits or circuit segments is not less than 100 megohms.

e. That all affected circuits (existing and new) are properly connected per applicable wiring diagrams.

f. That all affected circuits (existing and new) are operable. Tests shall be conducted that include operating each control not less than 10 times and the continuous operation of each lighting and power circuit for not less than 1/2 hour.

g. That the impedance to ground of each ground rod does not exceed 25 ohms prior to establishing connections to other ground electrodes. The fall-of-potential ground impedance test shall be used, as described by American National Standards Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE) Standard 81, to verify this requirement. As an alternate, clamp-on style ground impedance test meters may be used to satisfy the impedance testing requirement. Test equipment and its calibration sheets shall be submitted for review and approval by the Engineer prior to performing the testing.

Two copies of tabulated results of all cable tests performed shall be supplied by the Contractor to the Engineer. Where connecting new cable to existing cable, ground resistance tests shall be performed on the new cable prior to connection to the existing circuit.

There are no approved "repair" procedures for items that have failed testing other than complete replacement.

METHOD OF MEASUREMENT

108-4.1 Cable or wire installed in duct bank or conduit shall be measured by the number of linear feet (meters) installed and grounding connectors, and accepted as satisfactory. The measurement for this item shall not include additional quantities required for slack.

BASIS OF PAYMENT

108-5.1 Payment will be made at the contract unit price for cable and equipment ground installed in duct bank or conduit, in place by the Contractor and accepted by the Engineer. This price shall be full compensation for furnishing all materials and for all preparation and installation of these materials, and for all labor, equipment, tools, and incidentals, including ground rods and ground connectors necessary to complete this item.

Payment will be made under:

Item L-108-5.1-1	Underground Cable, #6**,** 5 KV**,** L-824 Type C, Installed In Conduit -- Per Linear Foot

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications

are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5340-26	Maintenance of Airport Visual Aid Facilities
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-53	Airport Lighting Equipment Certification Program

Commercial Item Description

A-A-59544A	Cable and Wire, Electrical (Power, Fixed Installation)
A-A-55809	Insulation Tape, Electrical, Pressure-Sensitive Adhesive, Plastic

ASTM International (ASTM)

ASTM B3	Standard Specification for Soft or Annealed Copper Wire
ASTM B8	Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft
ASTM B33	Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes
ASTM D4388	Standard Specification for Nonmetallic Semi-Conducting and Electrically Insulating Rubber Tapes

Mil Spec

MIL-PRF-23586F	Performance Specification: Sealing Compound (with Accelerator), Silicone Rubber, Electrical
MIL-I-24391	Insulation Tape, Electrical, Plastic, Pressure Sensitive

National Fire Protection Association (NFPA)

NFPA-70	National Electrical Code (NEC)
NFPA-780	Standard for the Installation of Lightning Protection Systems

American National Standards Institute (ANSI)/Institute of Electrical and Electronics Engineers (IEEE)

ANSI/IEEE STD 81	IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System

END OF ITEM L-108

ITEM L-110 AIRPORT UNDERGROUND ELECTRICAL DUCT BANKS AND CONDUITS

DESCRIPTION

110-1.1 This item shall consist of underground electrical conduits and duct banks (single or multiple conduits encased in concrete or buried in sand) installed per this specification at the locations and per the dimensions, designs, and details shown on the plans. This item shall include furnishing and installing of all underground electrical duct banks and individual and multiple underground conduits. It shall also include all turfing trenching, backfilling, removal, and restoration of any paved or turfed areas; concrete encasement, mandrelling, pulling lines, duct markers, plugging of conduits, and the testing of the installation as a completed system ready for installation of cables per the plans and specifications. This item shall also include furnishing and installing conduits and all incidentals for providing positive drainage of the system. Verification of existing ducts is incidental to the pay items provided in this specification.

EQUIPMENT AND MATERIALS

110-2.1 GENERAl.

a. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when requested by the Engineer.

b. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications and acceptable to the Engineer. Materials supplied and/or installed that do not comply with these specifications shall be removed, when directed by the Engineer and replaced with materials, that comply with these specifications, at the Contractor's cost.

c. All materials and equipment used to construct this item shall be submitted to the Engineer for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in project that accrue directly or indirectly from late submissions or resubmissions of submittals.

d. The data submitted shall be sufficient, in the opinion of the Engineer, to determine compliance with the plans and specifications. The Contractor's submittals shall be neatly bound in a properly sized 3-ring binder, tabbed by specification section. The Engineer reserves the right to reject any and all equipment, materials or procedures that do not meet the system design and the standards and codes specified in this document.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

110-2.2 STEEL CONDUIT. Rigid galvanized steel (RGS) conduit and fittings shall be hot dipped galvanized inside and out and conform to the requirements of Underwriters Laboratories Standards 6, 514B, and 1242. All RGS conduits or RGS elbows installed below grade, in concrete, permanently wet locations or other similar environments shall be painted with a 10-mil thick coat of asphaltum sealer or shall have a factory-bonded polyvinyl chloride (PVC) cover. Any exposed galvanizing or steel shall be coated with 10 mils of asphaltum sealer. When using PVC coated RGS conduit, care shall be exercised not to damage the factory PVC coating. Damaged PVC coating shall be repaired per the manufacturer's written instructions.

110-2.3 PLASTIC CONDUIT. Plastic conduit and fittings-shall conform to the following requirements:

- UL 514B covers W-C-1094-Conduit fittings all types, classes 1 thru 3 and 6 thru 10.
- UL 514C covers W-C-1094- all types, Class 5 junction box and cover in plastic (PVC).
- UL 651 covers W-C-1094-Rigid PVC Conduit, types I and II, Class 4.
- UL 651A covers W-C-1094-Rigid PVC Conduit and high-density polyethylene (HDPE) Conduit type III and Class 4.

Underwriters Laboratories Standards UL-651 and Article 352 of the current National Electrical Code shall be one of the following:

a. Type I–Schedule 40 PVC suitable for underground use either direct-buried or encased in concrete.

b. Type II–Schedule 40 PVC suitable for either above ground or underground use.

c. Type III – Schedule 80 PVC suitable for either above ground or underground use either direct- buried or encased in concrete.

d. Type III –HDPE pipe, minimum standard dimensional ratio (SDR) 11, suitable for placement with directional boring under pavement.

The type of solvent cement shall be as recommended by the conduit/fitting manufacturer.

110-2.4 SPLIT CONDUIT. Split conduit shall be pre-manufactured for the intended purpose and shall be made of steel or plastic.

110-2.5 CONDUIT SPACERS. Conduit spacers shall be prefabricated interlocking units manufactured for the intended purpose. They shall be of double wall construction made of high grade, high density polyethylene complete with interlocking cap and base pads. They shall be designed to accept No. 4 reinforcing bars installed vertically.

110-2.6 CONCRETE. Concrete shall conform to Item P-610, Concrete For Miscellaneous Structures. Where reinforced duct banks are specified, reinforcing steel shall conform to ASTM A 615 Grade 60. Concrete and reinforcing steel are incidental to the respective pay item of which they are a component part.

110-2.7 FLOWABLE BACKFILL. Flowable material used to back fill conduit and duct bank trenches shall conform to the requirements of Item P-153, “Controlled Low Strength Material”.

110-2.8 DETECTABLE WARNING TAPE. Plastic, detectable, American Public Works Association (APWA) red (electrical power lines, cables, conduit and lighting cable), orange (telephone/fiber optic cabling) with continuous legend magnetic tape shall be polyethylene film with a metallized foil core and shall be 3 inches (75 mm) wide. Detectable tape is incidental to the respective bid item.

CONSTRUCTION METHODS

110-3.1 GENERAL. The Contractor shall install underground duct banks and conduits at the approximate locations indicated on the plans. The Engineer shall indicate specific locations as the work progresses, if required to differ from the plans. Duct banks and conduits shall be of the size, material, and type indicated on the plans or specifications. Where no size is indicated on the plans or in the specifications, conduits shall be not less than 2 inches (50 mm) inside diameter or comply with the National Electrical Code based on cable to be installed, whichever is larger. All duct bank and conduit lines shall be laid so as to grade toward access points and duct or conduit ends for drainage. Unless shown otherwise on the plans, grades shall be at least 3 inches (75 mm) per 100 feet (30 m). On runs where it is not practicable to maintain the grade all one way, the duct bank and conduit lines shall be graded from the center in both directions toward access points or conduit ends, with a drain into the storm drainage system. Pockets or traps where moisture may accumulate shall be avoided. No duct bank or underground conduit shall be less than 18 inches (0.5 m) below finished grade. Where under pavement, the top of the duct bank shall not be less than 18 inches (0.5 m) below the subgrade.

The Contractor shall mandrel each individual conduit whether the conduit is direct-buried or part of a duct bank. An iron-shod mandrel, not more than 1/4 inch (6 mm) smaller than the bore of the conduit shall be pulled or pushed through each conduit. The mandrel shall have a leather or rubber gasket slightly larger than the conduit hole.

The Contractor shall swab out all conduits/ducts and clean base can, manhole, pull boxes, etc., interiors IMMEDIATELY prior to pulling cable. Once cleaned and swabbed the light bases, manholes, pull boxes, etc., and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, base cans, manholes, etc., is incidental to the pay item of the item being cleaned. All raceway systems left open, after initial cleaning, for any reason shall be recleaned at the Contractor's expense. All accessible points shall be kept closed when not installing cable. The Contractor shall verify existing ducts proposed for use in this project as clear and open. The Contractor shall notify the Engineer of any blockage in the existing ducts.

For pulling the permanent wiring, each individual conduit, whether the conduit is direct-buried or part of a duct bank, shall be provided with a 200-pound (90 kg) test polypropylene pull rope. The ends shall be secured and sufficient length shall be left in access points to prevent it from slipping back into the conduit. Where spare conduits are installed, as indicated on the plans, the open ends shall be plugged with removable tapered plugs, designed for this purpose.

All conduits shall be securely fastened in place during construction and shall be plugged to prevent contaminants from entering the conduits. Any conduit section having a defective joint shall not be installed. Ducts shall be supported and spaced apart using approved spacers at intervals not to exceed 5 feet (1.5 m).

Unless otherwise shown on the plans, concrete encased duct banks shall be used when crossing under pavements expected to carry aircraft loads, such as runways, taxiways, taxilanes, ramps and aprons. When under paved shoulders and other paved areas, conduit and duct banks shall be encased using flowable fill for protection.

All conduits within concrete encasement of the duct banks shall terminate with female ends for ease in current and future use. Install factory plugs in all unused ends. Do not cover the ends or plugs with concrete.

Where turf is well established and the sod can be removed, it shall be carefully stripped and properly stored.

Trenches for conduits and duct banks may be excavated manually or with mechanical trenching equipment unless in pavement, in which case they shall be excavated with mechanical trenching equipment. Walls of trenches shall be essentially vertical so that a minimum of shoulder surface is disturbed. Blades of graders shall not be used to excavate the trench.

When rock is encountered, the rock shall be removed to a depth of at least 3 inches (75 mm) below the

required conduit or duct bank depth and it shall be replaced with bedding material of earth or sand containing no mineral aggregate particles that would be retained on a 1/4-inch (6.3 mm) sieve. Flowable backfill may alternatively be used The Contractor shall ascertain the type of soil or rock to be excavated before bidding. All such rock removal shall be performed and paid for under Item P-152.

Underground electrical warning (Caution) tape shall be installed in the trench above all underground duct banks and conduits in unpaved areas. Contractor shall submit a sample of the proposed warning tape for approval by the Engineer. If not shown on the plans, the warning tape shall be located 6 inches above the duct/conduit or the counterpoise wire if present.

Joints in plastic conduit shall be prepared per the manufacturer's recommendations for the particular type of conduit. Plastic conduit shall be prepared by application of a plastic cleaner and brushing a plastic solvent on the outside of the conduit ends and on the inside of the couplings. The conduit fitting shall then be slipped together with a quick one-quarter turn twist to set the joint tightly. Where more than one conduit is placed in a single trench, or in duct banks, joints in the conduit shall be staggered a minimum of 2 feet (60 cm).

Changes in direction of runs exceeding 10 degrees, either vertical or horizontal, shall be accomplished using manufactured sweep bends.

Whether or not specifically indicated on the drawings, where the soil encountered at established duct bank grade is an unsuitable material, as determined by the Engineer, the unsuitable material shall be removed per Item P-152 and replaced with suitable material. Alternatively, additional duct bank supports that are adequate and stable shall be installed, as approved by the Engineer.

All excavation shall be unclassified and shall be considered incidental to the respective Item L-110 pay item of which it is a component part. Dewatering necessary for duct installation, erosion and turbidity control, per Federal, state, and local requirements is incidental to its respective pay item as a part of Item L-110. The cost of all excavation regardless of type of material encountered, shall be included in the unit price bid for the L-110 Item.

Unless otherwise specified, excavated materials that are deemed by the Engineer to be unsuitable for use in backfill or embankments shall be removed and disposed of offsite.

Any excess excavation shall be filled with suitable material approved by the Engineer and compacted per Item P-152.

It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Where existing active cables) cross proposed installations, the Contractor shall ensure that these cables are adequately protected. Where crossings are unavoidable, no splices will be allowed in the existing cables, except as specified on the plans. Installation of new cable where such crossings must occur shall proceed as follows:

a. Existing cables shall be located manually. Unearthed cables shall be inspected to assure absolutely no damage has occurred

b. Trenching, etc., in cable areas shall then proceed with approval of the Engineer, with care taken to minimize possible damage or disruption of existing cable, including careful backfilling in area of cable.

In the event that any previously identified cable is damaged during the course of construction, the Contractor shall be responsible for the complete repair.

110-3.2 DUCT BANKS. Unless otherwise shown in the plans, duct banks shall be installed so that the top of the concrete envelope is not less than 18 inches (0.5 m) below the bottom of the base or stabilized base course layers where installed under runways, taxiways, aprons, or other paved areas, and not less than 18 inches (0.5 m) below finished grade where installed in unpaved areas.

Unless otherwise shown on the plans, duct banks under paved areas shall extend at least 3 feet (1 m) beyond the edges of the pavement or 3 feet (1 m) beyond any under drains that may be installed alongside the paved area. Trenches for duct banks shall be opened the complete length before concrete is placed so that if any obstructions are encountered, provisions can be made to avoid them. Unless otherwise shown on the plans, all duct banks shall be placed on a layer of concrete not less than 3 inches (75 mm) thick prior to its initial set. The Contractor shall space the conduits not less than 3 inches (75 mm) apart (measured from outside wall to outside wall). All such multiple conduits shall be placed using conduit spacers applicable to the type of conduit. As the conduit laying progresses, concrete shall be placed around and on top of the conduits not less than 3 inches (75 mm) thick unless otherwise shown on the plans. All conduits shall terminate with female ends for ease of access in current and future use. Install factory plugs in all unused ends. Do not cover the ends or plugs with concrete.

Conduits forming the duct bank shall be installed using conduit spacers. No. 4 reinforcing bars shall be driven vertically into the soil a minimum of 6 inches (150 mm) to anchor the assembly into the earth prior to placing the concrete encasement. For this purpose, the spacers shall be fastened down with locking collars attached to the vertical bars. Spacers shall be installed at 5-foot (1.5-m) intervals. Spacers shall be in the proper sizes and configurations to fit the conduits. Locking collars and spacers shall be submitted to the Engineer for review prior to use.

When specified, the Contractor shall reinforce the bottom side and top of encasements with steel reinforcing mesh or fabric or other approved metal reinforcement. When directed, the Contractor shall supply additional supports where the ground is soft and boggy, where ducts cross under roadways, or where shown on the plans. Under such conditions, the complete duct structure shall be supported on reinforced concrete footings, piers, or piles located at approximately 5-foot (1.5-m) intervals.

All pavement surfaces that are to have ducts installed therein shall be neatly saw cut to form a vertical face. All excavation shall be included in the contract with price for the duct.

Install a plastic, detectable, color as noted, 3 inches (75 mm) wide tape, 8 inches (200 mm) minimum below grade above all underground conduit or duct lines not installed underpavement. Utilize the 3-inch (75-mm) wide tape only for single conduit runs. Utilize the 6-inch (150-mm) wide tape for multiple conduits and duct banks. For duct banks equal to or greater than 24 inches (600 mm) in width, utilize more than one tape for sufficient coverage and identification of the duct bank as required.

When existing cables are to be placed in split duct, encased in concrete, the cable shall be carefully located and exposed by hand tools. Prior to being placed in duct, the Engineer shall be notified so that he may inspect the cable and determine that it is in good condition. Where required, split duct shall be installed as shown on the drawings or as required by the Engineer.

110-3.3 CONDUITS WITHOUT CONCRETE ENCASEMENT. Trenches for single-conduit lines shall be not less than 6 inches (150 mm) nor more than 12 inches (300 mm) wide. The trench for 2 or more conduits installed at the same level shall be proportionately wider. Trench bottoms for conduits without concrete encasement shall be made to conform accurately to grade so as to provide uniform support for the conduit along its entire length.

Unless otherwise shown on the plans, a layer of fine earth material, at least 4 inches (100 mm) thick (loose measurement) shall be placed in the bottom of the trench as bedding for the conduit. The bedding material shall consist of soft dirt, sand or other fine fill, and it shall contain no particles that would be retained on a 1/4-inch (6.3 mm) sieve. The bedding material shall be tamped until firm. Flowable backfill may alternatively be used.

Unless otherwise shown on plans, conduits shall be installed so that the tops of all conduits within the Airport's secured area where trespassing is prohibited are at least 18 inches (0.5 m) below the finished grade. Conduits outside the Airport's secured area shall be installed so that the tops of the conduits are at least 24 inches (60 cm) below the finished grade per National Electric Code (NEC), Table 300.5.

When two or more individual conduits intended to carry conductors of equivalent voltage insulation rating are installed in the same trench without concrete encasement, they shall be spaced not less than 3 inches (75 mm) apart (measured from outside wall to outside wall) in a horizontal direction and not less than 6 inches (150 mm) apart in a vertical direction. Where two or more individual conduits intended to carry conductors of differing voltage insulation rating are installed in the same trench without concrete encasement, they shall be placed not less than 3 inches (75 mm) apart (measured from outside wall to outside wall) in a horizontal direction and lot less than 6 inches (150 mm) apart in a vertical direction.

Trenches shall be opened the complete length between normal termination points before conduit is installed so that if any unforeseen obstructions are encountered, proper provisions can be made to avoid them.

Conduits shall be installed using conduit spacers. No. 4 reinforcing bars shall be driven vertically into the soil a minimum of 6 inches (150 mm) to anchor the assembly into the earth while backfilling. For this purpose, the spacers shall be fastened down with locking collars attached to the vertical bars. Spacers shall be installed at 5-foot (1.5-m) intervals. Spacers shall be in the proper sizes and configurations to fit the conduits. Locking collars and spacers shall be submitted to the Engineer for review prior to use.

110-3.4 MARKERS. The location of each end and of each change of direction of conduits and duct banks shall be marked by a concrete slab marker 2 feet (60 cm) square and 4 - 6 inches (100 - 150 mm) thick extending approximately one inch (25 mm) above the surface. The markers shall also be located directly above the ends of all conduits or duct banks, except where they terminate in a junction/access structure or building. Each cable or duct run from a line of lights and signs to the equipment vault must be marked at approximately every 200 feet (61 m) along the cable or duct run, with an additional marker at each change of direction of cable or ductrun.

The Contractor shall impress the word “DUCT” or “CONDUIT” on each marker slab. Impression of letters shall be done in a manner, approved by the Engineer, for a neat, professional appearance. All letters and words must be neatly stenciled. After placement, all markers shall be given one coat of high- visibility orange paint, as approved by the Engineer. The Contractor shall also impress on the slab the number and size of conduits beneath the marker along with all other necessary information as determined by the Engineer. The letters shall be 4 inches (100 mm) high and 3 inches (75 mm) wide with width of stroke 1/2 inch (12 mm) and 1/4 inch (6 mm) deep or as large as the available space permits. Furnishing and installation of duct markers is incidental to the respective duct pay item.

110-3.5 BACKFILLING FOR CONDUITS. For conduits, 8 inches (200 mm) of sand, soft earth, or other fine fill (loose measurement) shall be placed around the conduits ducts and carefully tamped around and over them with hand tampers. The remaining trench shall then be backfilled and compacted per Item P-152 “Excavation and Embankment” except that material used for back fill shall be select material not larger than 4 inches (100 mm) in diameter.

Flowable backfill may alternatively be used.

Trenches shall not contain pools of water during back filling operations.

The trench shall be completely backfilled and tamped level with the adjacent surface; except that, where sod is to be placed over the trench, the backfilling shall be stopped at a depth equal to the thickness of the sod to be used, with proper allowance for settlement.

Any excess excavated material shall be removed and disposed of per instructions issued by the Engineer.

110-3.6 BACKFILLING FOR DUCT BANKS. After the concrete has cured, the remaining trench shall be backfilled and compacted per Item P-152 “Excavation and Embankment” except that the material used for backfill shall be select material not larger than 4 inches (100 mm) in diameter. In addition to the requirements of Item P-152, where duct banks are installed under pavement, one moisture/density test per lift shall be made for each 250 linear feet (76 m) of duct bank or one work period’s construction, whichever is less.

Flowable backfill may alternatively be used.

Trenches shall not contain pools of water during backfilling operations.

The trench shall be completely backfilled and tamped level with the adjacent surface; except that, where sod is to be placed over the trench, the backfilling shall be stopped at a depth equal to the thickness of the sod to be used, with proper allowance for settlement.

Any excess excavated material shall be removed and disposed of per instructions issued by the Engineer.

110-3.7 RESTORATION. Where sod has been removed, it shall be replaced as soon as possible after the backfilling is completed. All areas disturbed by the work shall be restored to its original condition. The Contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance. All restoration shall be considered incidental to the respective L-110 pay item. Following restoration of all trenching near airport movement surfaces, the Contractor shall thoroughly visually inspect the area for foreign object debris (FOD), and remove any such FOD that is found. This FOD inspection and removal shall be considered incidental to the pay item of which it is a component part.

110-3.8 OWNERSHIP OF REMOVED CABLE. All existing cable removed and not to be reused on this project shall be turned over to KCAD field maintenance at their discretion. All existing cable removed and not retained by KCAD field maintenance shall be considered debris and shall be legally disposed of by the contractor off airport property.

METHOD OF MEASUREMENT

110-4.1 Underground conduits shall be measured by the linear feet (meter) of conduits and duct banks installed, including encasement, locator tape, trenching and backfill with designated material, and for drain lines, the termination at the drainage structure, all measured in place, completed, and accepted. Separate measurement shall be made for the various types and sizes.

BASIS OF PAYMENT

110-5.1 Payment will be made at the contract unit price per linear foot for each type and size of conduit and duct bank completed and accepted, including trench and backfill with the designated material, and, for drain lines, the termination at the drainage structure. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item per the provisions and intent of the plans and specifications.

Payment will be made under:

Item L-110-5.1 Concrete Encased Underground Conduit, 2” PVC - Per Linear Foot

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circular (AC)

AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-53	Airport Lighting Equipment Certification Program

ASTM International (ASTM)

ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement

National Fire Protection Association (NFPA)

NFPA-70	National Electrical Code (NEC)

Underwriters Laboratories (UL)

UL Standard 6	Electrical Rigid Metal Conduit - Steel
UL Standard 514B	Conduit, Tubing, and Cable Fittings
UL Standard 514C	Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers
UL Standard 1242	Electrical Intermediate Metal Conduit Steel
UL Standard 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings
UL Standard 651A	Type EB and A Rigid PVC Conduit and HDPE Conduit

END OF ITEM L-110

ITEM L-125 INSTALLATION OF AIRPORT LIGHTING SYSTEMS

DESCRIPTION

125-1.1 This item shall consist of airport lighting systems furnished and installed in accordance with this specification, the referenced specifications, and the applicable advisory circulars (ACs). The systems shall be installed at the locations and in accordance with the dimensions, design, and details shown in the plans. This item shall include the furnishing of all equipment, materials, services, and incidentals necessary to place the systems in operation as completed units to the satisfaction of the Engineer.

125-1.2 REFERENCED MATERIALS. Additional details pertaining to specific systems covered in this section are contained in the Federal Aviation Administration (FAA) Advisory Circulars (AC's), latest edition, listed below:

150/5200-18	Airport Safety Self-Inspection
150/5210-5	Painting, Marking and Lighting of Vehicles Used on an Airport
150/5340-26	Maintenance of Airport Visual Aid Facilities
150/5345-42	Specification for Airport Light Bases, Transformer Houses, Junction Boxes and Accessories Chg.
150/5345-46	Specification for Runway and Taxiway Light Fixtures
150/5345-47	Isolation Transformers for Airport Lighting Systems
150/5345-53	Airport Lighting Equipment Certification Program
150/5370-2	Operational Safety on Airports during Construction
150/5370-10	Standards for Specifying Construction of Airports

The Contractor is responsible for obtaining and using the latest edition of the referenced FAA Advisory Circulars. This is not all inclusive but is offered as a convenience to the Contractor.

EQUIPMENT AND MATERIALS

125-2.1 GENERAL.

a. Airport lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall be approved under the Airport Lighting Equipment Certification Program in accordance with AC 150/5345-53, current version. FAA certified airfield lighting shall be compatible with each other to perform in compliance with FAA criteria and the intended operation. If the Contractor provides equipment that does not performs as intended because of incompatibility with the system, the Contractor assumes all costs to correct the system for to operate properly.

b. Manufacturer's certifications shall not relieve the Contractor of their responsibility to provide materials in accordance with these specifications and acceptable to the Engineer. Materials

supplied and/or installed that do not materially comply with these specifications shall be removed, when directed by the Engineer and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

c. All materials and equipment used shall be submitted to the Engineer for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Clearly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be clearly made with arrows or circles (highlighting is not acceptable). The Contractor shall be responsible for delays in the project accruing directly or indirectly from late submissions or resubmissions of submittals.

d. The data submitted shall be sufficient, in the opinion of the Engineer, to determine compliance with the plans and specifications. The Contractor's submittals shall be neatly bound in a properly sized 3- ring binder, tabbed by specification section. The Engineer reserves the right to reject any and all equipment, materials or procedures, which, in the Engineer's opinion, does not meet the system design and the standards and codes, specified herein.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least [twelve (12) months] from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

f. All LED light fixtures, with the exception of obstruction lighting (AC 150/5345-43) must be warranted by the manufacturer for a minimum of 4 years after date of installation inclusive of all electronics." Obstruction lighting warranty is set by the individual manufacturer.

EQUIPMENT AND MATERIALS

125-2.2 CONCRETE. Concrete shall conform to Specification Item P-610 Portland Cement Concrete.

125-2.3 CONDUIT. Conduit shall conform to Specification Item L-110 Installation of Airport Underground Electrical Duct.

125-2.4 CABLE. Cable shall conform to Item L-108 Installation of Underground Cable for Airports.

125-2.5 TAPE. Rubber and plastic electrical tapes shall be Scotch Electrical Tape Numbers 23 and 88 respectively, as manufactured by 3M Company or an approved equal.

125-2.6 CABLE CONNECTIONS. Cable Connections shall conform to Item L-108 Installation of Underground Cable for Airports.

125-2.7 RETROREFLECTIVE MARKERS. Retroreflective markers shall be type L-853 and shall conform to the requirements of 150/5345-39.

125-2.8 LIGHT BASE AND TRANSFORMER HOUSINGS. Light Base and Transformer Housings should conform to the requirements of AC 150/5345-42. Light bases shall be L-867 or L868, Class 1A, shall be provided as indicated or as required to accommodate the fixture or device installed thereon. Base plates, cover plates, and adapter plates shall be provided to accommodate various sizes of fixtures.

125-2.9 ISOLATION TRANSFORMERS. Isolation Transformers shall be Type L-830, size as required for each installation. Transformer shall conform to AC 150/5345-47.

125-2.10 TAXIWAY LIGHTS. Taxiway Edge Lights should conform to the requirements of AC 150/5345-46.

125-2.11 RUNWAY AND TAXIWAY SIGNS. Runway and Taxiway Signs should conform to the requirements of AC 150/5345-44.

CONSTRUCTION

125-3.1 INSTALLATION. The Contractor shall furnish, install, connect and test all equipment, accessories, conduit, cables, wires, buses, grounds and support items necessary to ensure a complete and operable airport lighting system as specified here and shown in the plans.
The equipment installation and mounting shall comply with the requirements of the National Electrical Code and state and local code agencies having jurisdiction.
The Contractor shall install the specified equipment in accordance with the applicable advisory circulars and the details shown on the plans.

125-3.2 TESTING. All lights shall be fully tested by continuous operation for not less than 24 hours as a completed system prior to acceptance. The test shall include operating the constant current regulator in each step not less than 10 times at the beginning and end of the 24-hour test. The fixtures shall illuminate properly during each portion of the test.

125-3.3 SHIPPING AND STORAGE.

a. Ship equipment in suitable packing material to prevent damage during shipping. Store and maintain equipment and materials in areas protected from weather and physical damage.

b. Any equipment and materials, in the opinion of the Engineer, damaged during construction or storage shall be replaced by the contractor at no additional cost to the owner. Painted or galvanized surfaces that are damaged shall be repaired according to manufacturer's recommendations.

125-3.4 ELEVATED AND IN-PAVEMENT LIGHTS.

a. Water, debris, and other foreign substances shall be removed prior to installing light base and light.

b. A jig or holding device shall be used when installing each light fixture to ensure positioning to the proper elevation, alignment, level control, and azimuth control. Light fixture shall be oriented with the light beams parallel to the runway or taxiway centerline and facing in the required direction. Outermost edge of fixture shall be level with the surrounding pavement. Surplus sealant or flexible embedding material shall be removed. The holding device shall remain in place until sealant has reached its initial set.

METHOD OF MEASUREMENT

125-4.1 The quantity of airfield lighting units to be paid for under this item shall be the number of each type installed, complete and in place, ready for operation, and accepted by the Engineer.

BASIS OF PAYMENT

125-5.1 Payment will be made at the Contract unit price for each complete runway or taxiway light, guidance sign, reflective marker, runway end identification light, precision approach path indicator, or abbreviated precision approach path indicator installed by the Contractor and accepted by the Engineer. This payment will be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools and incidentals necessary to complete this item.

Payment will be made under:

Item L-125-5.1-1 **Remove Existing Fixture Or Blank Cover** - This item includes all materials, labor, transportation and services required to remove existing fixture or blank steel cover – per each.

Item L-125-5.1-2 **Remove Existing Fixture Or Blank Cover And Existing Base Can** - This item includes all materials, labor, transportation and services required to remove existing blank steel cover and base can – per each.

Item L-125-5.1-3 **Install Blank Cover On Existing Base** - This item includes all materials, labor, transportation and services required to reinstall an existing in-pavement taxiway centerline light on a new base can. After completion of paving operation install fixture, adjust elevation and align and level as required. – per each

Item L-125-5.1-4 **Install New LED, L-852, Unidirectional Taxiway Centerline Fixture On Unidirectional Taxiway Centerline Fixture, On New L-868-B Galvanized Base (Includes Fixtures, Base Can, Transformer and Base Plate)** This item includes all materials, labor, transportation and services required to furnish and install a new in-pavement taxiway centerline light and base can. After completion of paving operation install fixture, adjust elevation and align and level as required. This item also includes spacer rings and dam ring as required, properly sized, functioning L-830 transformer, L-823 connectors i.e. superkits, o-rings and bolts, sealer and all incidentals to provide a complete and operational light to the satisfaction of the Engineer- per each.

Item L-125-5.1-5 **Reinstall Existing L-852, Unidirectional Taxiway Centerline Fixture On New L-868-B Galvanized Base (Base Can And Base Plate)** - This item includes all materials, labor, transportation and services required to reinstall an existing in-pavement taxiway centerline light on a new base can. After completion of paving operation install fixture, adjust elevation and align and level as required. This item also includes spacer rings and dam ring as required, L-823 connectors i.e. superkits, o-rings and bolts, sealer and all incidentals to provide a complete and operational light to the satisfaction of the Engineer- per each.

Item L-125-5.1-6 **Reinstall Existing Elevated Taxiway Edge Light Fixture On New L-867-B Galvanized Base (Base Can And Base Plate) -** This item includes all materials, labor, transportation and services required to reinstall an existing taxiway edge light on a new base can. After completion of paving operation install fixture, adjust elevation and align and level as required. This item also includes spacer rings and dam ring as required, L-823 connectors i.e. superkits, o-rings and bolts, sealer and all incidentals to provide a complete and operational light to the satisfaction of the Engineer- per each.

Item L-125-5.1-7 **Install New LED, Elevated Taxiway Edge Light Fixture, On New L-867-B Galvanized Base (Includes Fixtures, Base Can, Transformer And Base Plate)** - This item includes all materials, labor, transportation and services required to furnish and install a new elevated taxiway edge light and base can. After completion of paving operation install fixture, adjust elevation and align and level as required. This item also includes spacer rings and dam ring as required, properly sized, functioning L-830 transformer, L-823 connectors i.e. superkits, o-rings and bolts, sealer and all incidentals to provide a complete and operational light to the satisfaction of the Engineer- per each.

Item L-125-5.1-8 **Install New LED, Elevated Taxiway Edge Light Fixture, On Existing Base Can**- This item includes all materials, labor, transportation and services required to furnish and install a new elevated taxiway edge light on an existing base can. After completion of paving operation install fixture, adjust elevation and align and level as required. This item also includes spacer rings and dam ring as required, properly sized, functioning L-830 transformer, L-823 connectors i.e. superkits, o-rings and bolts, sealer and all incidentals to provide a complete and operational light to the satisfaction of the Engineer- per each.

Item L-125-5.1-9 **Replace Broken Bolts** - This item includes all materials, labor, transportation and services required to remove broken bolts from an existing base can. This item includes drilling out bolt, retapping hole, installing stainless steel insert or Helicoil if required, replacing stainless steel bolt and washer, cleaning metal shavings from can and all incidentals required to restore base can bolt threads to the satisfaction of the Engineer- per each.

END OF ITEM L-125

REPORT OF SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING EVALUATION

KCI TAXIWAY E REHABILITATION
KANSAS CITY, MISSOURI
TSI PROJECT NUMBER 20212063

HNTB CORPORATION
715 Kirk Drive
Kansas City, Missouri 64105

TSi geotechnical, inc.

8248 NW 101st Terrace, #5
Kansas City, Missouri 64153

February 25, 2022

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816.599.7965 (tel)
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PROFESSIONAL SERVICES SINCE 1989

February 25, 2022

Mr. Matthew Walsh, P.E.
HNTB CORPORATION
715 Kirk Drive
Kansas City, Missouri 64105

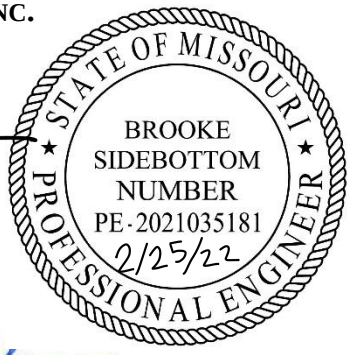
Re: Report of Subsurface Exploration and Geotechnical Engineering Evaluation
KCI Taxiway E Rehabilitation
Kansas City, Missouri
TSi Project No. 20212063

Dear Mr. Walsh:

TSi Geotechnical, Inc. (TSi) has completed the authorized subsurface exploration and geotechnical engineering evaluation for the referenced project and is pleased to submit this report of our findings to HNTB Corporation (HNTB). The purpose of our work was to determine subsurface conditions at specific exploration locations and to gather data on which to prepare geotechnical recommendations for the design and construction of the proposed improvements to Taxiway E pavements at the Kansas City International Airport in Kansas City, Missouri. This report describes the exploration procedures used, documents the data obtained, and presents our evaluations and recommendations relative to the geotechnical engineering aspects of the project.

We appreciate the opportunity to assist you with this project. If you have any questions, or if we may be of further service to you, please call us.

Respectfully submitted,
TSI GEOTECHNICAL, INC.



Brooke Sidebottom, PE
Project Manager

Denise B. Hervey, PE
Principal

Morris Dirnberger, PE
Senior Geotechnical Engineer

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General Notes
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Appendix C – Laboratory Test Results
DCP Test Results

Appendix D – Pavement Core Photographs
Pavement Surface Photographs

SUBSURFACE EXPLORATION AND
GEOTECHNICAL ENGINEERING EVALUATION
KCI TAXIWAY E REHABILITATION
KANSAS CITY, MISSOURI

1.0 SCOPE OF SERVICES

This report summarizes the results of a geotechnical study performed for the proposed pavement rehabilitation of Taxiway E at the Kansas City International Airport in Kansas City, Missouri. The study was performed in general accordance with TSi's proposal to HNTB, dated June 24, 2021, which identified the following items for inclusion in this study report:

- Subsurface conditions at the boring locations;
- Laboratory test results for soil samples;
- Influence of groundwater on the project;
- Subgrade recommendations;
- Pavement core photos and pavement surface photos;
- Construction considerations; and,
- Recommendations for engineering observation and testing during construction.

2.0 SITE AND PROJECT DESCRIPTIONS

TSi understands that the project will include the pavement rehabilitation of Taxiway E at the Kansas City International Airport in Kansas City, Missouri. The general location of the project site is shown below. The Site and Boring Location Plans, Figures 1a and 1b in Appendix A, provide a more detailed plan of the project area.



3.0 FIELD EXPLORATION AND LABORATORY TESTING

3.1 FIELD EXPLORATION

TSi conducted an exploration program on December 2nd and 3rd, 2021. The exploration consisted of completing six soil borings designated as C-3B, C-5B, C-8B, C-10B, C-13B, and C-15B and twenty pavement cores designated as C-1 through C-20. Bulk samples were obtained from Borings C-3B, C-8B, and C13B to depths of approximately 4 feet. Two Dynamic Cone Penetrometer (DCP) tests were also performed in the locations of C-6 and C-11. The approximate locations of the borings and pavement cores are indicated on the Site and Boring Location Plans, Figures 1a and 1b in Appendix A. The boring logs from this exploration are included in Appendix B. The DCP test results are included in Appendix C. The boring locations were selected and marked in the field by HNTB.

All borings were drilled using a CME-550 ATV-mounted drill rig to advance continuous flight auger drilling tools to the requested depth. A geotechnical specialist from TSi directed the exploration procedures in the field, maintained a field log of the conditions encountered in the borings, and collected and classified the samples recovered. Split-spoon samples were recovered from the borings using a 2-inch outside-diameter, split-barrel sampler, driven by an automatic hammer in accordance with ASTM D 1586. Three-inch Shelby tube samples were obtained in accordance with ASTM D 1587. The Shelby tube samples were preserved by sealing the entire sample in the tube. Borings were backfilled with auger cuttings and a sand and gravel mixture, compacted with the drill auger and the pavement replaced with a quick setting grout patch. Any excess cuttings were swept up and removed from the site.

The results of the field tests and measurements were recorded on field logs and appropriate data sheets by TSi's geotechnical specialist. Those data sheets and logs contain information concerning the exploration methods, samples attempted and recovered, indications of the presence of various subsurface materials, and the observation of groundwater. The field logs and data sheets contain the engineer's interpretations of the conditions between samples, based on the performance of the exploration equipment and the cuttings brought to the surface. The final logs included in this report were based on the field logs, modified as appropriate based on the results of laboratory testing of soil samples.

3.2 LABORATORY TESTING

A laboratory testing program was conducted by TSi to determine selected engineering properties of the obtained soil samples. The following laboratory tests were performed on the samples recovered from the borings:

- Visual description by color and texture of each sample (ASTM 2488);
- Natural moisture content of each sample (ASTM D 2216);
- Atterberg limits on selected cohesive samples (ASTM D 4318);
- Unit weight of selected cohesive samples (ASTM D 7263);
- Unconfined compressive strengths on selected cohesive samples (ASTM D 2166);
- Modified Proctor compaction of selected samples (ASTM D 1557); and
- California Bearing Ratio (CBR) (ASTM D 1883).

The results of most of the laboratory tests are summarized on the boring logs. Results of the Modified Proctors and CBRs are included in Appendix C, along with the field DCP test results. The analyses and conclusions contained in this report are based on field and laboratory test results and on the interpretations of the subsurface conditions as reported on the logs. Only data pertinent to the objectives of this report have been included on the logs; therefore, these logs should not be used for other purposes.

4.0 SUBSURFACE CONDITIONS

Details of the subsurface conditions encountered at the boring locations are shown on the logs in Appendix B. The general subsurface conditions encountered and their pertinent engineering characteristics are described in the following paragraphs. Conditions represented by the borings should be considered applicable only at these locations on the dates shown; the reported conditions may be different at other locations or at other times.

4.1 GENERALIZED SUBSURFACE PROFILE

The surficial materials at all of the boring locations and at some of the pavement core locations (Cores C-1, C-2, C-4, C-6, C-7, C-9, C-11, C-12, and C-14) generally consisted of approximately 23.0 to 25.25 inches of Portland Cement Concrete (PCC). The surficial materials encountered at pavement core locations C-16 to C-20 consisted of approximately 7.75 to 10.25 inches of Asphaltic Concrete. Borings C-3B, C-10B, C-13B, and C-15B were underlain by varying amounts of crushed limestone baserock.

The surficial materials at Boring C-3B were underlain by native fat clay (CH, in accordance with the Unified Soil Classification System (USCS)) with trace amounts of gravel to a depth of approximately 4.0 feet. Standard penetration test (N-value) in the native fat clay was 16 blows per foot (bpf). Moisture content within the fat clay layer was 28%. An Atterberg Limit test performed on the fat clay resulted in a liquid limit (LL) of 51 and a plasticity index (PI) of 33.

The native fat clay at Boring C-3B and the surficial materials at the remaining boring locations were generally underlain by native lean clays (CL, in accordance with the USCS) with various amounts of gravel. Standard penetration tests (N-values) in the native lean clays ranged from 7 blows per foot (bpf) to 27 bpf. Moisture contents ranged from 11% to 27%. Atterberg tests performed within the lean clays resulted in liquid limits (LL) of 37 to 45 and plasticity indexes (PI) of 13 to 29. Dry unit weight and undrained shear strength values on the native lean clay material ranged from 100 to 109 pcf and 0.94 to 2.12 tons per square foot, respectively. The native soils continued to a termination depth of approximately ten feet at all boring locations.

4.2 GROUNDWATER

Groundwater was not observed during drilling at the boring locations. The presence or absence of groundwater at a particular location does not necessarily mean that groundwater will be present or absent at that location at other times. Seasonal variations and other unknown considerations will cause fluctuations in water levels and the presence of water in the soils.

5.0 Engineering Assessments and Recommendations

5.1 Swelling Clay Considerations

High plasticity clay will likely be exposed during grading in some areas of the site below the proposed pavements. The fat clays are of concern with regard to their potential for volume change. This concern applies to these materials whether they are in their natural condition or used as fill material. These materials tend to swell when they absorb water and shrink when they dry out. Potential detrimental effects for development of the site include heaving, settlement, and differential movements of pavements constructed directly over these materials.

All high plasticity clays (CH) should be overexcavated from beneath the pavements to a minimum depth of 24 inches. These materials should be replaced with Low Volume Change (LVC) fill material as discussed in Section 6.3 of this report. In addition to removal and replacement, some relatively simple design and construction considerations are recommended that will help to maintain the natural moisture contents of the fat clay. Avoiding conditions that could result in excessive wetting or drying of these materials will reduce their potential for volume change. The following design and construction precautions are recommended:

1. High plasticity clay should not be used as fill or backfill material in the upper 24 inches of the pavement areas.
2. High plasticity clay used as fill below 24 inches of the pavement areas should be placed and compacted wet of its optimum moisture content, as discussed in Section 6.3 of this report.
3. Positive surface drainage should be provided during and after construction to prevent ponding of water on or adjacent to pavements.
4. Excessive watering of grass or shrubs adjacent to the pavements should be avoided.

These considerations should be incorporated into the site grading and development plans for the project. In addition, individual pavement areas should be observed during construction to determine the specific soil conditions that exist at that location and the most prudent approach for mitigating any swelling soil concerns.

5.2 Pavement Subgrade Recommendations

TSi recommends a well-graded aggregate base, such as MoDOT Type 5 or equivalent, directly underlying the pavements with a minimum thickness of 6 inches. Fill material below the pavements should consist of a minimum of 24 inches of LVC material consistent with requirements outlined in Section 6.3 of this report. If high-plasticity clays are encountered, they should be overexcavated to a depth of 24 inches below pavement subgrade and replaced with LVC material.

Three modified Proctor tests were conducted on bulk soil samples obtained from approximately 0 to 4 feet in depth at Borings C-3B, C-8B, and C-13B. The tests yielded maximum dry density results of 110.1, 111.7, and 115.3 pounds per cubic foot (pcf) and optimum moisture content results

of 16.3%, 16.3%, and 15.1%, respectively. Three California Bearing Ratio (CBR) tests of the native soil were also conducted. These tests resulted in CBR values ranging from 2.5 to 4.3. The modified Proctor and CBR test results are included in Appendix C of this report. A summary of the results is presented in Table 1 below. Based on the general character of the on-site subsurface conditions and assuming a properly prepared subgrade, a CBR value of 3.0 is considered appropriate for use in designing the new flexible pavement sections for the site.

New rigid pavement design can be based on a modulus-of-subgrade reaction (k) of 55 pounds per cubic inch (pci) for the subgrade. These values for rigid and flexible pavement design are based on the requirement that the pavement subgrade is prepared in accordance with the recommendations provided in this report.

Stabilization of the subgrade will provide a stiffer, more durable subgrade, which will improve the durability of the pavements. It will also provide a subgrade that is less prone to disturbance under construction traffic, especially during rainy weather. If the design team desires to increase the CBR value of the subgrade, subgrade stabilization with fly ash or lime is recommended. Our experience indicates that CBR values of up to 15 to 20 can be achieved with fly ash-treated subgrade. The CBR value for lime treated soils will be greater than the CBR values measured in the native clay. The stabilized soils should be compacted as recommended in Section 6.4 of this report. The CBR value used in design for treated soils should be verified during construction using dynamic cone penetrometer (DCP) tests.

A lime- or fly ash-treated Proctor and CBR testing was not included in the scope of this exploration. The exact amount of lime or fly ash application should be determined in the laboratory before construction begins. If requested, TSi can perform additional services to determine the optimal percentage of fly ash or lime application in the laboratory using additional soil samples from the site to perform modified Proctor and CBR tests at varying fly ash or lime percentages.

TABLE 1
SUMMARY OF MODIFIED PROCTOR AND CBR TESTS

Bulk Sample Location	Sample Depth (Feet)	USCS	Optimum Moisture Content (%)	Maximum Dry Density (pcf)	Dry Density at 95% Compaction (pcf)	CBR Value
C-3B	0 to 4	CH LL=51 PI=33	16.3	110.1	104.6	4.3
C-8B	0 to 4	CL LL=44 PI=26	16.3	111.7	106.1	3.0
C-13B	0 to 4	CL LL=45 PI=27	15.1	115.3	109.5	2.5

USCS = Unified Soil Classification System, Maximum dry density as determined by ASTM D 1557
pcf = pounds per cubic foot

6.0 Site Preparation and Excavation Considerations

6.1 Subgrade Preparation

Construction areas should be stripped of existing pavement, organic soil, and any deleterious materials prior to site excavation and grading. Care should be taken during stripping to prevent excessive disturbance of the underlying soil. After the removal of these materials, and where further excavation is not required, the exposed subgrade should be proofrolled. Proofrolling is accomplished by passing over the subgrade with proper equipment, such as a loaded tandem-axle dump truck or scraper, and observing the subgrade for pockets of excessively soft, wet, disturbed, or otherwise unsuitable soils. Any unacceptable materials thus found should be excavated and either recompacted or replaced with new structural fill.

Prior to placing fill in any area, the subgrade should be scarified to a depth of about 6 inches, the moisture content adjusted to near its optimum moisture content, and the subgrade recompacted in accordance with recommendations made in subsequent sections of this report. The recommended proofrolling and/or scarification and recompaction may be waived if, in the opinion of a geotechnical engineer, this procedure would be detrimental or unnecessary. Following satisfactory preparation of the subgrade, controlled fill material may be placed.

6.2 Subgrade Protection

Construction areas should be properly drained in order to reduce or prevent surface runoff from collecting on the exposed subgrade. Any ponded water on the exposed subgrade should be removed immediately. Temporary stormwater swales and collection areas may be required to control surface water flow into low areas of the site.

To prevent unnecessary disturbance of the subgrade soils, heavy construction vehicles should be restricted from traveling through the finished subgrade. If areas of disturbed subgrade develop, they should be properly repaired in accordance with the recommendations in this report.

Immediately prior to construction of the pavement, it is recommended that the exposed subgrade be evaluated to determine whether moisture contents are within the recommended range and to identify areas disturbed by construction operations. Moisture conditioning of wet or dry areas is recommended prior to construction of the pavement section. Areas disturbed by construction traffic should be reworked.

6.3 Fill and Backfill Materials

In general, fills should consist of clay or well-graded granular materials with a maximum particle size of 2 inches. Low volume change (LVC) fill should consist of approved, well-graded granular materials or low to moderate plasticity cohesive soil. Low to moderate plasticity cohesive materials used as LVC fill should consist of inorganic clay with a liquid limit less than 45 and a plasticity index of less than 25. Some of the soils encountered in the borings are suitable for use as fill. Fill materials from off-site sources should be approved prior to their use. Soil with decayable material such as wood, trash, metal, or vegetation is typically not acceptable.

Some of the fill material may require the addition of moisture prior to compaction. This should be performed in a controlled manner using a tank truck with a spray bar, and the moistened soil should be thoroughly blended with a disk or pulverizer to produce a uniform moisture content. Repeated passages of the equipment may be required to achieve a uniform moisture content. If fill is placed during the winter season, fill materials should be carefully observed to see that no ice or frozen soils are placed as fill or remain in the base materials upon which fill is placed.

Some of the fill material may require moisture reduction prior to compaction. During warm weather, moisture reduction can generally be accomplished by disking, or otherwise aerating the soil. When air-drying is not possible, a moisture-reducing chemical additive, such as lime or Class C fly ash, may be used as a drying agent.

6.4 Fill and Backfill Placement

Cohesive fill should be compacted to a dry density of at least 95% of the modified Proctor maximum dry density (ASTM D 1557) of the soil. Granular material, such as crushed limestone, placed for structure or pavement support, should be compacted to at least 100% of the modified Proctor maximum dry density. The moisture content of lean clay or granular fill at the time of compaction should be within ±2% of the optimum moisture content of the material as determined by the modified Proctor compaction test. The moisture content of fat clay fill materials should be from the optimum moisture content to 4% above optimum. Fill should be placed in loose lifts not in excess of 8 inches thick, and compacted to the aforementioned criterion. However, it may be necessary to place fill in thinner lifts to achieve the recommended compaction when using small hand-operated equipment.

7.0 CONSTRUCTION OBSERVATION AND TESTING

It is recommended that TSi be retained during construction to perform testing and observation services for the following items:

- Observation and documentation of the exposed soil after stripping topsoil and/or pavement, during scarification, compaction, and proofrolling;
- Testing of asphalt and/or concrete materials used for paving; and,
- Placement and compaction of fill materials.

These Quality Assurance services should help verify the design assumptions and maintain construction procedures in accordance with the project plans, specifications, and good engineering practice.

8.0 REPORT LIMITATIONS

This geotechnical report has been prepared for the exclusive use of **HNTB CORPORATION** for the specific application to the subject project. The information and recommendations contained in this report have been made in accordance with generally accepted geotechnical and foundation engineering practices; no other warranties are implied or expressed.

The assessments and recommendations submitted in this report are based in part upon the data obtained from the borings. The nature and extent of variations between the borings may not be evident at this time. If variations appear evident at a later date, it may be necessary to re-evaluate the recommendations of this report.

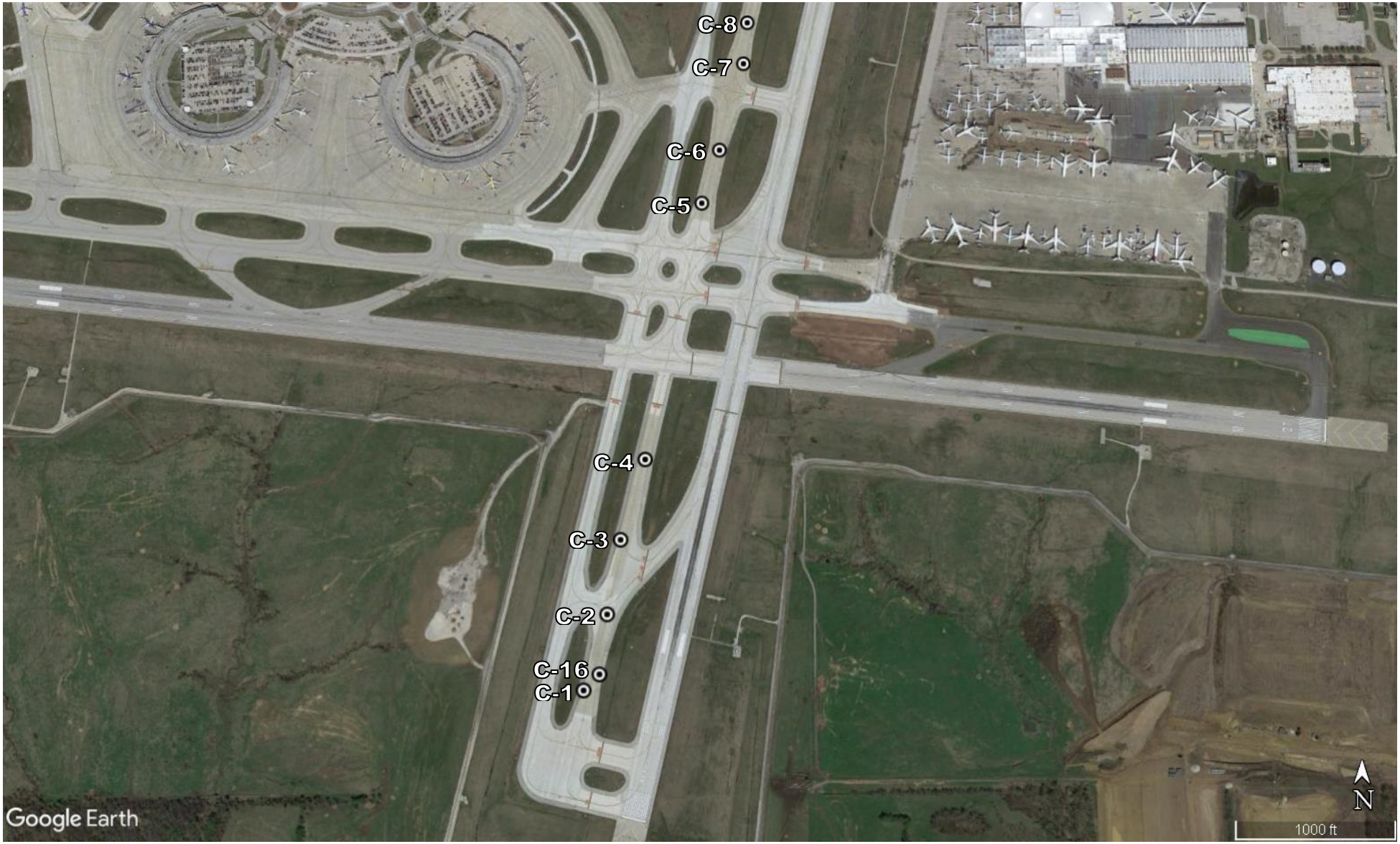
We emphasize that this report was prepared for design purposes only and may not be sufficient to prepare an accurate construction bid. Contractors reviewing this report should acknowledge that the information and recommendations contained herein are for design purposes.

If conditions at the site have changed due to natural causes or other operations, this report should be reviewed by TSi to determine the applicability of the analyses and recommendations considering the changed conditions. The report should also be reviewed by TSi if changes occur in the project location, size, and type, in the planned loads, elevations, grading and site development plans or the project concepts.

TSi requests the opportunity to review the final plans and specifications for the project prior to construction to verify that the recommendations in this report are properly interpreted and incorporated in the design and construction documents. If TSi is not accorded the opportunity to make this recommended review, we can assume no responsibility for the misinterpretation of our recommendations.

APPENDIX A

Site and Boring Location Plan



Legend

Boring/Core Location

N W E S

Figure 1a, Site & Boring Location Plan	Project No. 20212063
KCI Airport Taxiway E Kansas City, MO	
Not to Scale	Approved by: JM

TSi geotechnical, inc.



Legend

Boring/Core Location

N
W E
S

Figure 1b, Site & Boring Location Plan	Project No. 20212063
KCI Airport Taxiway E Kansas City, MO	
Not to Scale	Approved by: JM

TSi geotechnical, inc.

APPENDIX B

Boring Logs
General Notes
Unified Soil Classification System

LOG OF BORING NO. C-3B

Project Description: **KCI Taxiway E**
Kansas City, MO

TSi Geotechnical Inc.
1600 Genessee Street, Suite 960
Kansas City, Missouri 64102
(816) 283-3838 (816) 283-3938 FAX

Surface El.: **Not surveyed**
Location: **See Site and Location Plan**

Depth, feet	Samples	Sample #	Graphic Log	MATERIAL DESCRIPTION	Recovery %	RQD	Penetration Blows Per 6 inches	Hand Penetrometer, Qu TSF	Undrained Shear Strength, TSF	Unit Dry Weight, lb/cu ft.	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index
				CONCRETE (24.5")										
				GRAVEL BASE (1.0")										
		SS-1		Brown, fat CLAY (CH), trace gravel	56		6 9 7	>4.5			28			
5		SS-2		Brown, lean CLAY (CL)	78		2 3 4	1.50			24			
		ST-3			100			2.00	1.23	103	23			
		SS-4			100		4 5 7	3.00			25			
10				Boring terminated at 10.0 ft.										
15														
20														
25														

Completion Depth: 10.0
Date Boring Started: 12/2/21
Date Boring Completed: 12/2/21
Engineer/Geologist: JM
Project No.: 20212063

Remarks: Boring drilled with CME-550 using FA and auto SPT. Groundwater not encountered during drilling.

The stratification lines represent approximate strata boundaries. In situations, the transition may be gradual.

KC LOG WITH LAB KCI TAXIWAY E GINT LOGS.GPJ 1/20/22

LOG OF BORING NO. C-5B

Project Description: **KCI Taxiway E**
Kansas City, MO

TSi Geotechnical Inc.
1600 Genessee Street, Suite 960
Kansas City, Missouri 64102
(816) 283-3838 (816) 283-3938 FAX

Surface El.: **Not surveyed**
Location: **See Site and Location Plan**

Depth, feet	Samples	Sample #	Graphic Log	MATERIAL DESCRIPTION	Recovery %	RQD	Penetration Blows Per 6 inches	Hand Penetrometer, Qu TSF	Undrained Shear Strength, TSF	Unit Dry Weight, lb/cu ft.	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index
				CONCRETE (24.5")										
		SS-1		Gray, lean CLAY (CL), trace gravel	22		7 6 4				17			
				- no gravel below 4.0 ft.										
5		ST-2			100			2.75	1.25	106	22	45	17	28
				- brown and gray from 6.0 to 7.4 ft.			6							
		SS-3			94		7 4	3.00			21			
				- dark brown below 7.4 ft.										
		SS-4			67		3 5 9	4.50			21			
10				Boring terminated at 10.0 ft.										
15														
20														
25														

Completion Depth: 10.0
Date Boring Started: 12/2/21
Date Boring Completed: 12/2/21
Engineer/Geologist: JM
Project No.: 20212063

Remarks: Boring drilled with CME-550 using FA and auto SPT. Groundwater not encountered during drilling.

The stratification lines represent approximate strata boundaries. In situations, the transition may be gradual.

KC LOG WITH LAB KCI TAXIWAY E GINT LOGS.GPJ 1/20/22

LOG OF BORING NO. C-8B

Project Description: **KCI Taxiway E**
Kansas City, MO

TSi Geotechnical Inc.
1600 Genessee Street, Suite 960
Kansas City, Missouri 64102
(816) 283-3838 (816) 283-3938 FAX

Surface El.: **Not surveyed**
Location: **See Site and Location Plan**

Depth, feet	Samples	Sample #	Graphic Log	MATERIAL DESCRIPTION	Recovery %	RQD	Penetration Blows Per 6 inches	Hand Penetrometer, Qu TSF	Undrained Shear Strength, TSF	Unit Dry Weight, lb/cu ft.	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index
				CONCRETE (24.75")										
		SS-1		Gray, lean CLAY (CL), trace gravel	61		11 16 11	2.50			19			
5		SS-2		- brown, no gravel below 4.0 ft.	100		4 6 10	>4.5			20			
		SS-3			83		3 7 9	4.50			20			
		ST-4			75			4.00	2.12	108	21			
10				Boring terminated at 10.0 ft.										
15														
20														
25														

Completion Depth: 10.0
Date Boring Started: 12/2/21
Date Boring Completed: 12/2/21
Engineer/Geologist: JM
Project No.: 20212063

Remarks: Boring drilled with CME-550 using FA and auto SPT. Groundwater not encountered during drilling.

The stratification lines represent approximate strata boundaries. In situations, the transition may be gradual.

KC LOG WITH LAB KCI TAXIWAY E GINT LOGS.GPJ 1/20/22

LOG OF BORING NO. C-10B

Project Description: **KCI Taxiway E**
Kansas City, MO

TSi Geotechnical Inc.
1600 Genessee Street, Suite 960
Kansas City, Missouri 64102
(816) 283-3838 (816) 283-3938 FAX

Surface El.: **Not surveyed**
Location: **See Site and Location Plan**

Depth, feet	Samples	Sample #	Graphic Log	MATERIAL DESCRIPTION	Recovery %	RQD	Penetration Blows Per 6 inches	Hand Penetrometer, Qu TSF	Undrained Shear Strength, TSF	Unit Dry Weight, lb/cu ft.	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index
				CONCRETE (23.0")										
				GRAVEL BASE (1.5")										
		SS-1		Dark gray, lean CLAY (CL)	44		6 6 4	>4.5			23	37	24	13
				- brown and gray from 4.0 to 6.5 ft.										
5		ST-2			71			2.50	0.94	102	26			
				- gray below 6.5 ft.										
		SS-3			100		3 5 7	2.75			24			
		SS-4			100		3 6 7	3.00			21			
10				Boring terminated at 10.0 ft.										
15														
20														
25														

Completion Depth: 10.0
Date Boring Started: 12/2/21
Date Boring Completed: 12/2/21
Engineer/Geologist: JM
Project No.: 20212063

Remarks: Boring drilled with CME-550 using FA and auto SPT. Groundwater not encountered during drilling.

The stratification lines represent approximate strata boundaries.
In situations, the transition may be gradual.

KC LOG WITH LAB KCI TAXIWAY E GINT LOGS.GPJ 1/20/22

LOG OF BORING NO. C-13B

Project Description: **KCI Taxiway E**
Kansas City, MO

TSi Geotechnical Inc.
1600 Genessee Street, Suite 960
Kansas City, Missouri 64102
(816) 283-3838 (816) 283-3938 FAX

Surface El.: **Not surveyed**
Location: **See Site and Location Plan**

Depth, feet	Samples	Sample #	Graphic Log	MATERIAL DESCRIPTION	Recovery %	RQD	Penetration Blows Per 6 inches	Hand Penetrometer, Qu TSF	Undrained Shear Strength, TSF	Unit Dry Weight, lb/cu ft.	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index
				CONCRETE (25.25")										
				GRAVEL BASE (2.0")										
		SS-1		Gray, lean CLAY (CL)	33		6 8 4	4.00			18			
				- brown from 4.0 to 6.0 ft.										
5		SS-2			100		3 5 7	2.50			21			
				- gray from 6.0 to 8.5 ft.										
		ST-3			100			2.25	1.12	100	27			
				- brown below 8.5 ft.										
		SS-4			100		6 8 4	4.00			22			
10				Boring terminated at 10.0 ft.										
15														
20														
25														

Completion Depth: 10.0
Date Boring Started: 12/2/21
Date Boring Completed: 12/2/21
Engineer/Geologist: JM
Project No.: 20212063

Remarks: Boring drilled with CME-550 using FA and auto SPT. Groundwater not encountered during drilling.

The stratification lines represent approximate strata boundaries. In situations, the transition may be gradual.

KC LOG WITH LAB KCI TAXIWAY E GINT LOGS.GPJ 1/20/22

LOG OF BORING NO. C-15B

Project Description: **KCI Taxiway E**
Kansas City, MO

TSi Geotechnical Inc.
1600 Genessee Street, Suite 960
Kansas City, Missouri 64102
(816) 283-3838 (816) 283-3938 FAX

Surface El.: **Not surveyed**
Location: **See Site and Location Plan**

Depth, feet	Sample #	MATERIAL DESCRIPTION	Recovery %	RQD	Penetration Blows Per 6 inches	Hand Penetrometer, Qu TSF	Undrained Shear Strength, TSF	Unit Dry Weight, lb/cu ft.	Water Content, %	Liquid Limit	Plastic Limit	Plasticity Index
		CONCRETE (23.5")										
		BASE GRAVEL (3.5")			8							
	SS-1	Gray, lean CLAY (CL)	33		5 4	>4.5			26			
		- brown below 4.0 ft.										
5	ST-2		100			>4.5	1.41	109	18	45	16	29
	SS-3		100		6 8 10	2.75			19			
	SS-4	- with sand below 8.5 ft.	44		10 13 12				11			
10		Boring terminated at 10.0 ft.										
15												
20												
25												

Completion Depth: 10.0
Date Boring Started: 12/2/21
Date Boring Completed: 12/2/21
Engineer/Geologist: JM
Project No.: 20212063

Remarks: Boring drilled with CME-550 using FA and auto SPT. Groundwater not encountered during drilling.

The stratification lines represent approximate strata boundaries. In situations, the transition may be gradual.

KC LOG WITH LAB KCI TAXIWAY E GINT LOGS.GPJ 1/20/22

GENERAL NOTES

The number of borings is based on: topographic and geologic factors; the magnitude of structure loading; the size, shape, and value of the structure; consequences of failure; and other factors. The type and sequence of sampling are selected to reduce the possibility of undiscovered anomalies and maintain drilling efficiency. Attempts are made to detect and/or identify occurrences during drilling and sampling such as the presence of water, boulders, gas, zones of lost circulation, relative ease or resistance to drilling progress, unusual sample recovery, variation in resistance to driving split-spoon samplers, unusual odors, etc. However, lack of notation regarding these occurrences does not preclude their presence.

Although attempts are made to obtain stabilized groundwater levels, the levels shown on the Logs of Boring may not have stabilized, particularly in more impermeable cohesive soils. Consequently, the indicated groundwater levels may not represent present or future levels. Groundwater levels may vary significantly over time due to the effects of precipitation, infiltration, or other factors not evident at the time indicated.

Unless otherwise noted, soil classifications indicated on the Logs of Boring are based on visual observations and are not the result of classification tests. Although visual classifications are performed by experienced technicians or engineers, classifications so made may not be conclusive.

Generally, variations in texture less than one foot in thickness are described as layers within a stratum, while thicker zones are logged as individual strata. However, minor anomalies and changes of questionable lateral extent may appear only in the verbal description. The lines indicating changes in strata on the Logs of Borings are approximate boundaries only, as the actual material change may be between samples or may be a gradual transition.

Samples chosen for laboratory testing are selected in such a manner as to measure selected physical characteristics of each material encountered. However, as samples are recovered only intermittently and not all samples undergo a complete series of tests, the results of such tests may not conclusively represent the characteristics of all subsurface materials present.

NOTATION USED ON BORING LOGS

APPROXIMATE PROPORTIONS

TRACE	<15%
WITH	15-30%
MODIFIER	>30%

Clay or clayey may be used as major material or modifier, regardless of relative proportions, if the clay content is sufficient to dominate the soil properties.

PARTICLE SIZE

BOULDERS		>12 Inches
COBBLES		12 Inches – 3 Inches
GRAVEL		
	Coarse	3 Inches – ¾ Inch
	Fine	¾ Inch – No. 4 Sieve (4.750 mm)
SAND		
	Coarse	No. 4 – No. 10 Sieve (2.000 mm)
	Medium	No. 10 – No. 40 Sieve (0.420 mm)
	Fine	No. 40 – No. 200 Sieve (0.074 mm)
SILT		No. 200 Sieve - 0.002 mm
CLAY		< 0.002 mm

PENETRATION – BLOWS

Number of impacts of a 140-pound hammer falling a distance of 30 inches to cause a standard split-barrel sampler, 1 3/8 inches I.D., to penetrate a distance of 6 inches. The number of impacts for the first 6 inches of penetration is known as the seating drive. The sum of the impacts for the last 12 inches of penetration is the Standard Penetration Test Resistance or "N" value, blows per foot. For example, if blows = 6-8-9, "N" = 8+9 or 17.

OTHER NOTATIONS

Recovery % – length of recovered soil divided by length of sample attempted.

50/2"	Impacts of hammer to cause sampler to penetrate the indicated number of inches
WR	Sampler penetrated under the static loading of the weight of the drill rods
WH	Sampler penetrated under the static loading the weight of the hammer and drill rods
HSA	Hollow stem auger drilling method
FA	Flight auger drilling method
RW	Rotary wash drilling methods with drilling mud
AH	Automatic hammer used for Standard Penetration Test sample
SH	Safety hammer with rope and cathead used for Standard Penetration Test sample

GRAPHIC SYMBOLS


Depth at which groundwater was encountered during drilling


Depth at which groundwater was measured after drilling


Standard Penetration Test Sample, ASTM D1586


3-inch diameter Shelby Tube Sample, ASTM D1587



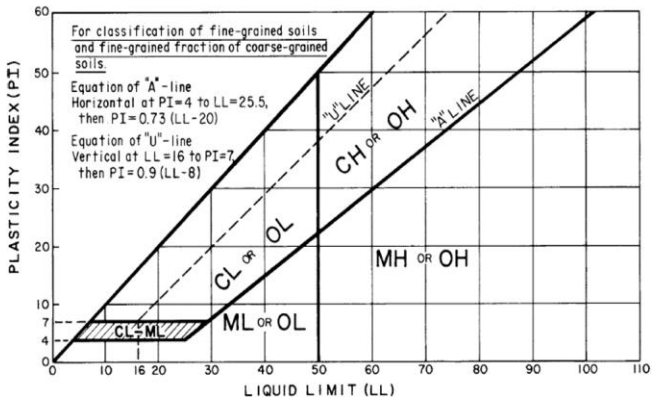
Sample grabbed from auger


NX Size rock core sample

TSi geotechnical

UNIFIED SOIL CLASSIFICATION SYSTEM, (ASTM D-2487)

Major Divisions			*Group Symbols*		*Typical Names*	*Laboratory Classification Criteria*		
Coarse-grained soils (More than half of materials is larger than No. 200 sieve size)	Gravels (More than half of coarse fraction is larger than No. 4 sieve size)	Clean gravels (Little or no fines)	GW		Well-graded gravels, gravel-sand mixtures, little or no fines	Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-Grained soils are classified as follows: Less than 5 per cent GW, GP, SW, SP; More than 12 per cent GM, GC, SM, SC; 5 to 12 per cent Borderline cases requiring dual symbols[b]	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
			GP		Poorly graded gravels, gravel-sand mixtures, little or no fines		Not meeting all gradation requirements for GW	
		Gravels with fines (Appreciable amount of fines)	GM[a]	d	Silty gravels, gravel-sand-silt mixtures		Atterberg limits below "A" line or P.1. less than 4	Above "A" line with P.1. between 4 and 7 are *borderline* cases requiring use of dual symbols
				u				
			GC		Clayey gravels, gravel-sand-clay mixtures		Atterberg limits below "A" line with P.1. greater than 7	
	Sands (More than half of coarse fraction is smaller than No. 4 sieve size)	Clean sands (Little or no fines)	SW		Well-graded sands, gravelly sands, little or no fines		$C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
			SP		Poorly graded sands, gravelly sands, little or no fines		Not meeting all gradation requirements for SW	
		Sands with fines (Appreciable amount of fines)	SM[a]	d	Silty sands, sand-mix mixtures		Atterberg limits about "A" line or P.I. less than 4	Limits plotting in hatched zone with P.I. between 4 and 7 are *borderline* cases requiring use of dual symbols
				u				
			SC		Clayey sands, sand-clay mixtures		Atterberg limits about "A" line with P.I. greater than 7	
Fine-grained soils (More than half of materials is smaller than No. 200 sieve size)	Silts and clays (Liquid limit less than 50)		ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity			
			CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays			
			OL		Organic silts and organic silty clays of low plasticity			
	Silts and clays (Liquid limit greater than 50)		MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts			
			CH		Inorganic clays of medium to high plasticity, organic silts			
			OH		Organic clays of medium to high plasticity, organic silts			
	Highly organic soils		Pt		Peat and other highly organic soils			



[a]Division of GM and SM groups into subdivisions of d and u are for roads and airfields only. Subdivision is based on Atterberg limits; suffix d used when L.L. is 26 or less and the P.1. is 6 or less; the suffix u used when L.L. is greater than 28.

[b]Borderline classifications, used for soils possessing characteristics of two groups, are designated by combinations of group symbols. For example: GW-GC, well-graded gravel-sand mixture with clay binder.

APPENDIX C

Laboratory Test Results
DCP Test Results

PROCTOR TEST

PROJECT NAME:	**KCI Taxiway E**
PROJECT No.:	20212063
SAMPLE NUMBER:	**C-3B**
SAMPLE LOCATION:	**Bulk**
DEPTH:	**0 to 4 ft.**
VISUAL CLASS. (USCS):	**Brown, fat CLAY (CH)**

TYPE OF COMPACTION	**Mod.**	**D1557**		
SIEVE ANALYSIS RESULTS	0.75	0.375	No. 4	**PROCEDURE**
% Retained(cummulative)				**A**

SOIL WEIGHT DATA					
Determination Number	1	2	3	4	5
Weight- Soil + Mold (wet),g	3966.4	3970.5	3931.4	3881.7	
Weight of Mold,g	2017.0	2017.0	2017.0	2017.0	
Weight Wet Soil,g	**1949.4**	**1953.5**	**1914.4**	**1864.7**	
Volume of Mold (ft^3)	**0.0333**	**0.0333**	**0.0333**	**0.0333**	
MOISTURE DATA					
Weight- Soil + Tare (wet),g	389.3	436.8	358.2	401.3	
Weight- Soil + Tare (dry),g	326.2	371.2	311.8	355.0	
Weight- Tare,g	9.1	9.4	8.3	8.2	
COMPUTED DATA					
Wet unit weight (pcf)	**129.1**	**129.3**	**126.7**	**123.5**	
Moisture content (%)	**19.9**	**18.1**	**15.3**	**13.3**	
Dry unit weight (pcf)	**107.6**	**109.5**	**109.9**	**108.9**	

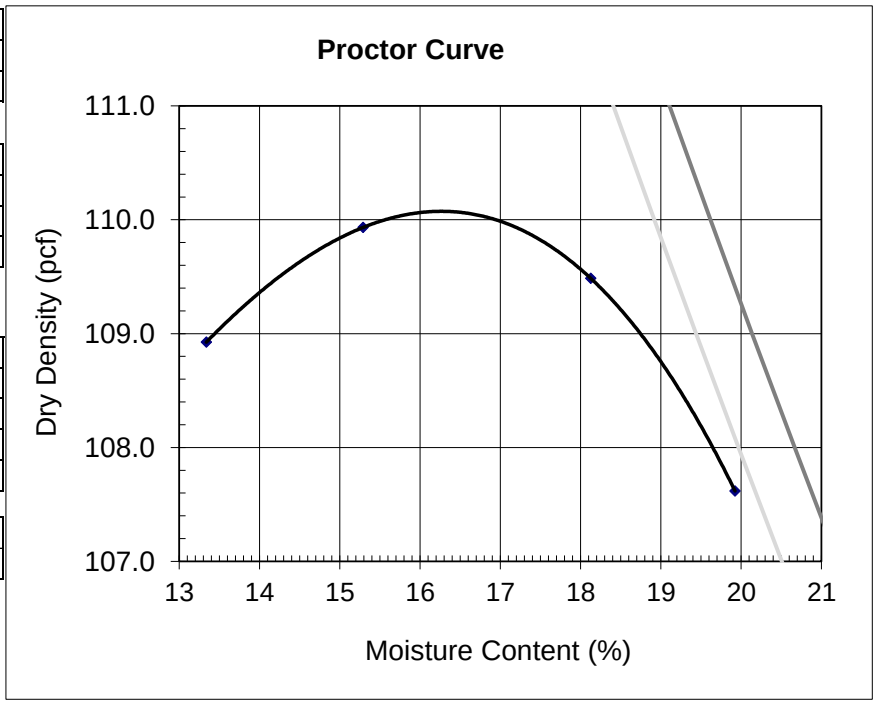
Maximum Dry Density (pcf)	**110.1**
Optimum Moisture Content (%)	**16.3**
Natural Moisture Content (%)*	**23.0**

Liquid Limit	**51**
Plastic Limit	18
Plasticity Index	**33**
CLASSIFICATION. (USCS)*	**CH**

*** with additive**

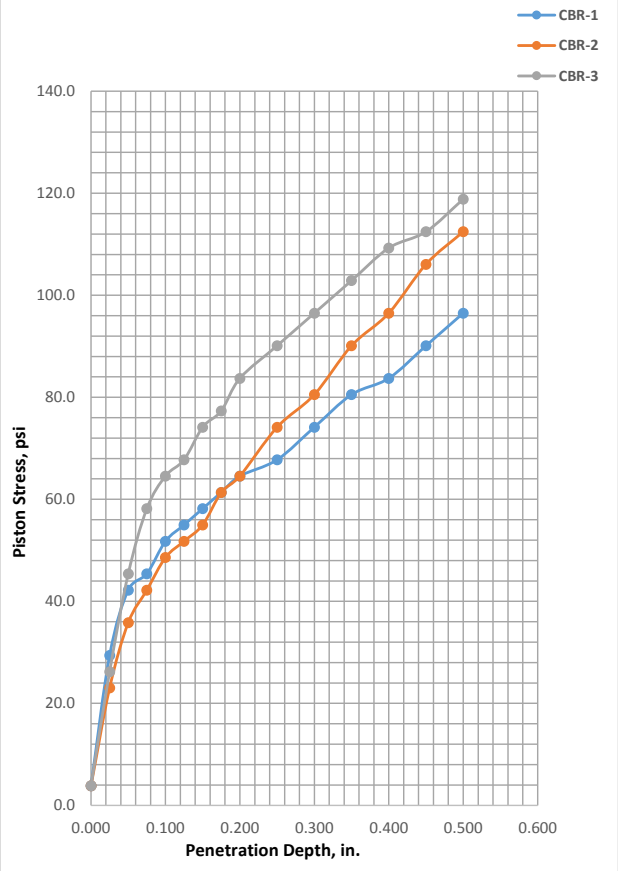
	Date
Tested by: MN	12/10/2021
Calculated by: MN	12/13/2021
Checked by: TBS	1/24/2022
Entered Into Excel by: MN	12/13/2021

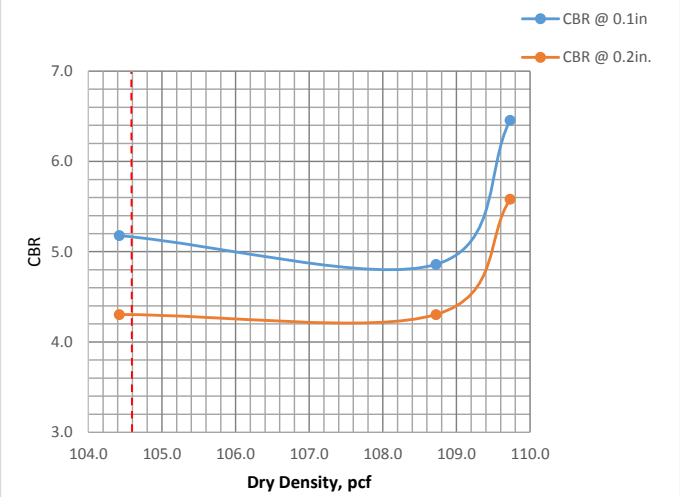
NOTE:

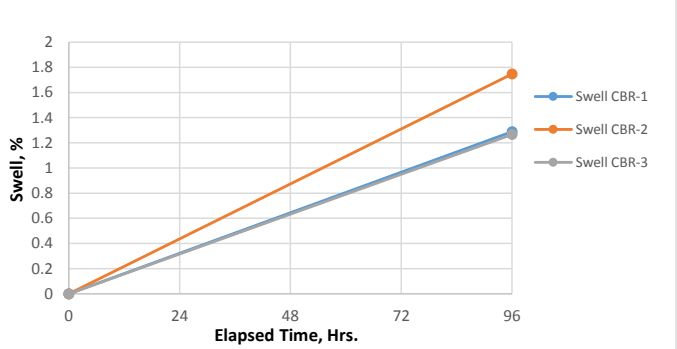


CALIFORNIA BEARING RATIO TEST REPORT
ASTM D 1883-07

% CBR Value @ 95% Compaction = 5.2 @ 0.1 in. penetration
% CBR Value @ 95% Compaction = 4.3 @ 0.2 in. penetration







Specimen ID	Molded			CBR%		Moisture of Top 1" Layer, %	Surcharge lbs	Max Swell, %
	Density, pcf	Percent of Max. Density	Moisture	0.1 in.	0.2 in			
CBR-1	104.4	94.8	18.0	5.2	4.3	23.3	10	1.3
CBR-2	108.7	98.7	17.7	4.9	4.3	22.7	10	1.7
CBR-3	109.7	99.7	17.9	6.5	5.6	21.8	10	1.3

Material Description	USCS	MAX DENSITY, pcf	OPTIMUM MOISTURE, %	LL	PI
Brown, fat CLAY (CH)	CH	110.1	16.3	51	33

Remarks:

Compaction Method: ASTM D1557

Project: KCI Airport Taxiway E

Location: Kansas City, MO

Client: HNTB

Sample No.: C-3B

Boring: Bulk | **Project No.: 20212063**

Depth: 0 to 4 ft. | **Date: 1/24/2022**

TSI geotechnical, inc.

8248 NW 101st
Terrace #5
Kansas City,
Missouri 64153
p| 816.599.7965
f| 816.599.7967

PROCTOR TEST

PROJECT NAME:	**KCI Taxiway E**
PROJECT No.:	20212063
SAMPLE NUMBER:	**C-8B**
SAMPLE LOCATION:	**Bulk**
DEPTH:	**0 to 4 ft.**
VISUAL CLASS. (USCS):	**Brown, lean CLAY (CL)**

TYPE OF COMPACTION	**Mod.**	**D1557**		
SIEVE ANALYSIS RESULTS	0.75	0.375	No. 4	**PROCEDURE**
% Retained(cummulative)				**A**

SOIL WEIGHT DATA					
Determination Number	1	2	3	4	5
Weight- Soil + Mold (wet),g	3933.7	3979.2	3972.6	3875.6	
Weight of Mold,g	2017.0	2017.0	2017.0	2017.0	
Weight Wet Soil,g	**1916.7**	**1962.2**	**1955.6**	**1858.6**	
Volume of Mold (ft^3)	**0.0333**	**0.0333**	**0.0333**	**0.0333**	
MOISTURE DATA					
Weight- Soil + Tare (wet),g	406.5	370.4	388.1	408.6	
Weight- Soil + Tare (dry),g	336.6	313.6	336.0	360.0	
Weight- Tare,g	9.1	10.0	8.4	8.4	
COMPUTED DATA					
Wet unit weight (pcf)	**126.9**	**129.9**	**129.5**	**123.0**	
Moisture content (%)	**21.4**	**18.7**	**15.9**	**13.8**	
Dry unit weight (pcf)	**104.6**	**109.4**	**111.7**	**108.1**	

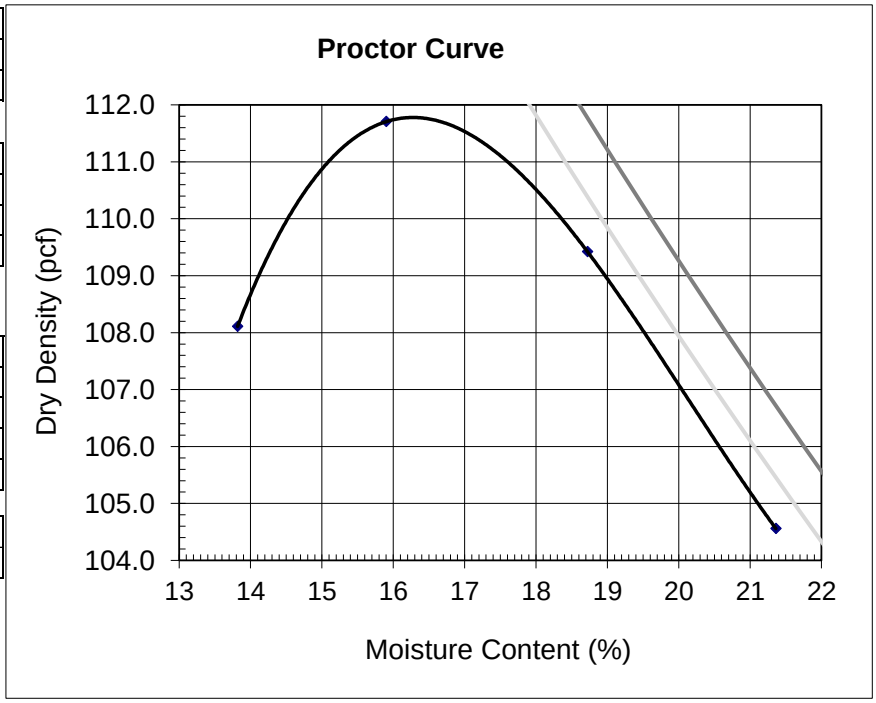
Maximum Dry Density (pcf)	**111.7**
Optimum Moisture Content (%)	**16.3**
Natural Moisture Content (%)*	**21.4**

Liquid Limit	**44**
Plastic Limit	18
Plasticity Index	**26**
CLASSIFICATION. (USCS)*	**CL**

*** with additive**

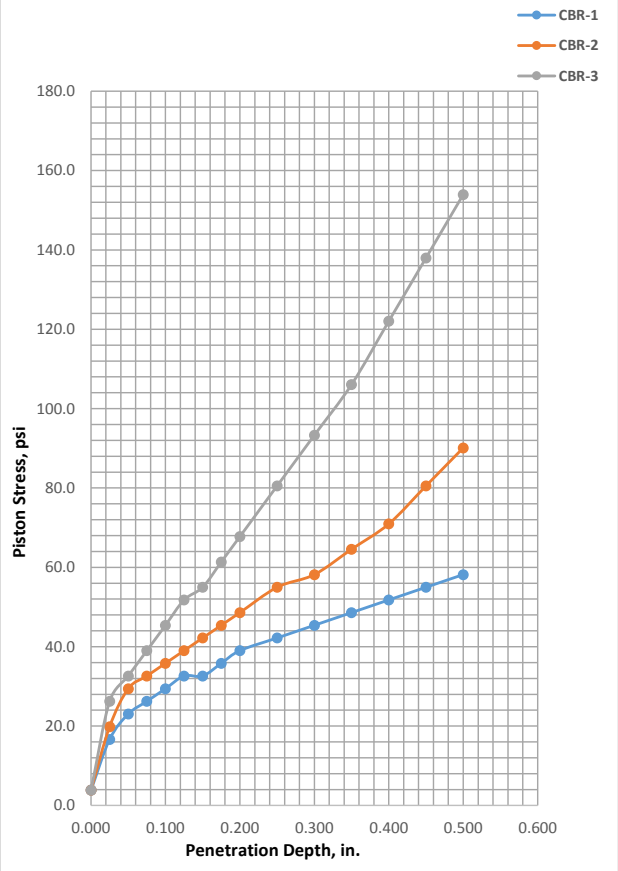
	Date
Tested by: MN	12/8/2021
Calculated by: MN	12/9/2021
Checked by: TBS	1/25/2022
Entered Into Excel by: MN	12/9/2021

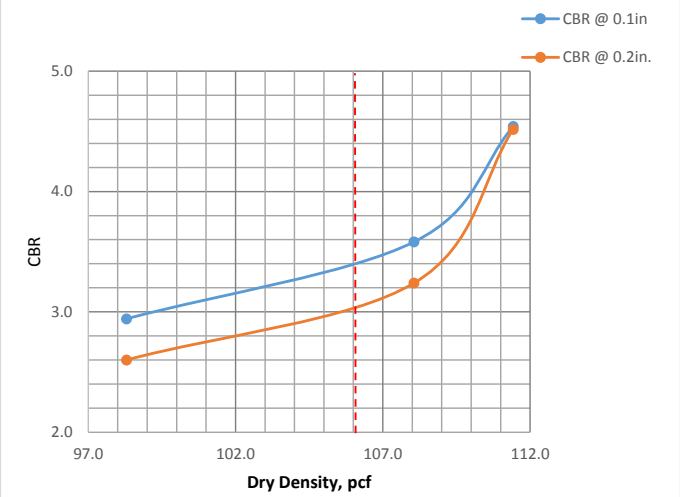
NOTE:

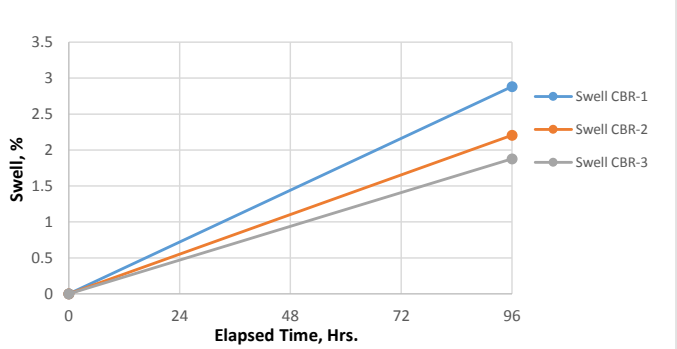


CALIFORNIA BEARING RATIO TEST REPORT
ASTM D 1883-07

% CBR Value @ 95% Compaction = 3.4 @ 0.1 in. penetration
% CBR Value @ 95% Compaction = 3.0 @ 0.2 in. penetration







Specimen ID	Molded			CBR%		Moisture of Top 1" Layer, %	Surcharge lbs	Max Swell, %
	Density, pcf	Percent of Max. Density	Moisture	0.1 in.	0.2 in			
CBR-1	98.3	88.0	16.4	2.9	2.6	25.5	10	2.9
CBR-2	108.1	96.7	16.5	3.6	3.2	22.3	10	2.2
CBR-3	111.4	99.8	16.6	4.5	4.5	21.5	10	1.9

Material Description	USCS	MAX DENSITY, pcf	OPTIMUM MOISTURE, %	LL	PI
Brown, lean CLAY (CL)	CL	111.7	16.3	44	26

Remarks:

Compaction Method: ASTM D1557

Project: KCI Airport Taxiway E

TSI geotechnical, inc.

8248 NW 101st
Terrace #5
Kansas City,
Missouri 64153
p| 816.599.7965
f| 816.599.7967

Location: Kansas City, MO

Client: HNTB

Sample No.: C-8B

Boring: Bulk | **Project No.: 20212063**

Depth: 0 to 4 ft. | **Date: 1/24/2022**

PROCTOR TEST

PROJECT NAME:	**KCI Taxiway E**
PROJECT No.:	20212063
SAMPLE NUMBER:	**C-13B**
SAMPLE LOCATION:	**Bulk**
DEPTH:	**0 to 4 ft.**
VISUAL CLASS. (USCS):	**Brown and gray, lean CLAY (CL)**

TYPE OF COMPACTION	**Mod.**	**D1557**		
SIEVE ANALYSIS RESULTS	0.75	0.375	No. 4	**PROCEDURE**
% Retained(cummulative)				**A**

SOIL WEIGHT DATA					
Determination Number	1	2	3	4	5
Weight- Soil + Mold (wet),g	3963.0	4004.9	3988.6	3815.4	
Weight of Mold,g	2017.0	2017.0	2017.0	2017.0	
Weight Wet Soil,g	**1946.0**	**1987.9**	**1971.6**	**1798.4**	
Volume of Mold (ft^3)	**0.0333**	**0.0333**	**0.0333**	**0.0333**	
MOISTURE DATA					
Weight- Soil + Tare (wet),g	415.4	405.7	428.3	412.7	
Weight- Soil + Tare (dry),g	347.4	346.6	376.6	369.1	
Weight- Tare,g	9.2	9.2	9.2	9.2	
COMPUTED DATA					
Wet unit weight (pcf)	**128.8**	**131.6**	**130.5**	**119.1**	
Moisture content (%)	**20.1**	**17.5**	**14.1**	**12.1**	
Dry unit weight (pcf)	**107.3**	**112.0**	**114.4**	**106.2**	

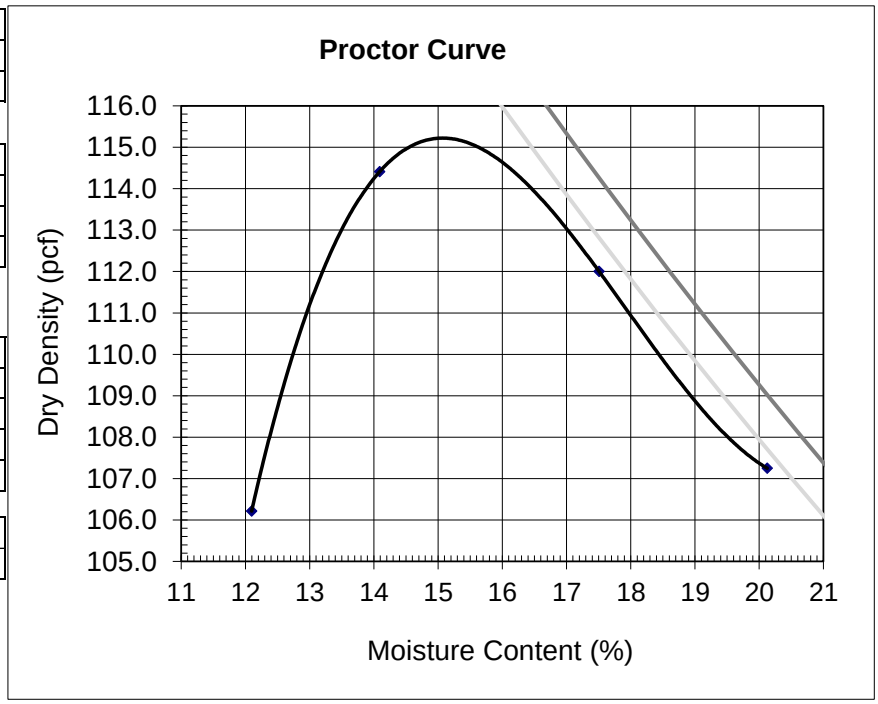
Maximum Dry Density (pcf)	**115.3**
Optimum Moisture Content (%)	**15.1**
Natural Moisture Content (%)*	**20.1**

Liquid Limit	**45**
Plastic Limit	18
Plasticity Index	**27**
CLASSIFICATION. (USCS)*	**CL**

*** with additive**

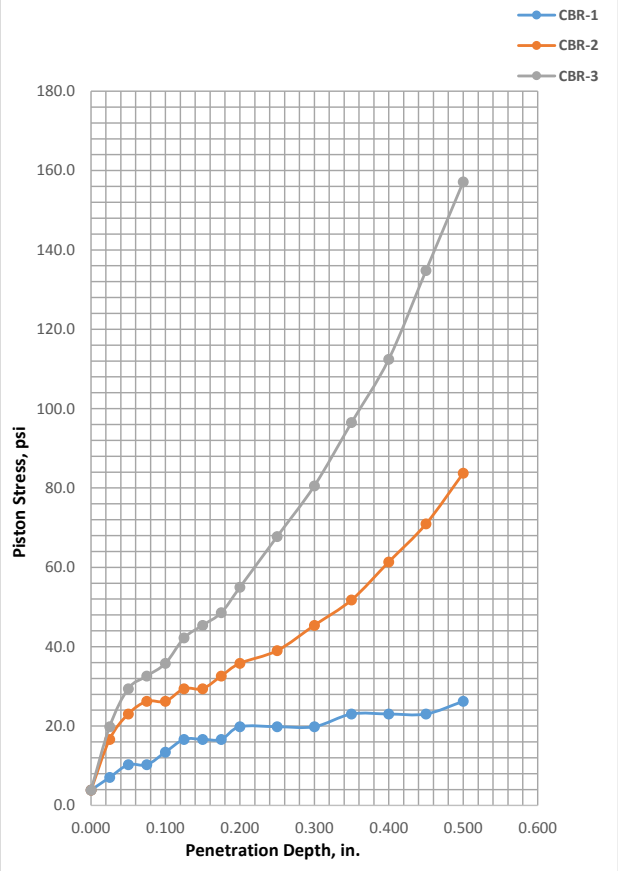
	Date
Tested by: MN	12/8/2021
Calculated by: MN	12/9/2021
Checked by: TBS	1/24/2022
Entered Into Excel by: MN	12/9/2021

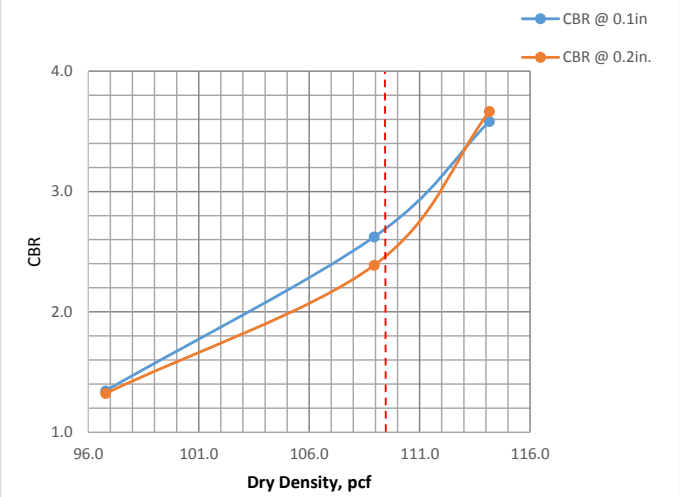
NOTE:

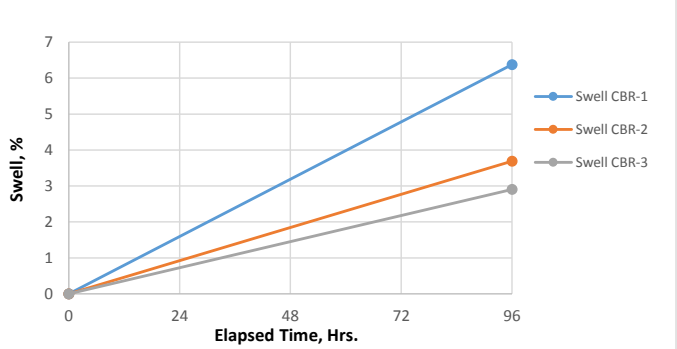


CALIFORNIA BEARING RATIO TEST REPORT
ASTM D 1883-07

% CBR Value @ 95% Compaction = 2.7 @ 0.1 in. penetration
% CBR Value @ 95% Compaction = 2.5 @ 0.2 in. penetration







	Molded				CBR%		Moisture of Top 1" Layer, %	Surcharge lbs	Max Swell, %
Specimen ID	Density, pcf	Percent of Max. Density	Moisture		0.1 in.	0.2 in			
CBR-1	96.8	83.9	15.1		1.3	1.3	29.8	10	6.4
CBR-2	108.9	94.5	15.0		2.6	2.4	22.9	10	3.7
CBR-3	114.2	99.0	15.0		3.6	3.7	21.6	10	2.9

Material Description	USCS	MAX DENSITY, pcf	OPTIMUM MOISTURE, %	LL	PI
Brown and gray, lean CLAY (CL)	CL	115.3	15.1	45	27

Remarks:

Compaction Method: ASTM D1557

Project: KCI Airport Taxiway E

Location: Kansas City, MO

Client: HNTB

Sample No.: C-13B

Boring: Bulk | **Project No.: 20212063**

Depth: 0 to 4 ft. | **Date: 1/24/2022**

TSI geotechnical, inc.

8248 NW 101st
Terrace #5
Kansas City,
Missouri 64153
p| 816.599.7965
f| 816.599.7967

TSi Geotechnical Inc.
8248 NW 101st Terrace, #5
Kansas City, MO 64153

DCP Test Data

Project Name: KCI Airport Taxiway E
Project Number: 20212063
Location: Kansas City, MO
Date: 02-12-21
Technician: AB/CK

TEST RESULTS

Boring
C-6

Pavement Thickness	23.5
Blow Count	**Reading (mm)**
Start	94
1	101
2	108
3	114
4	124
5	135
6	160
7	174
8	181
9	189
10	193
11	196
12	199
13	204
14	209
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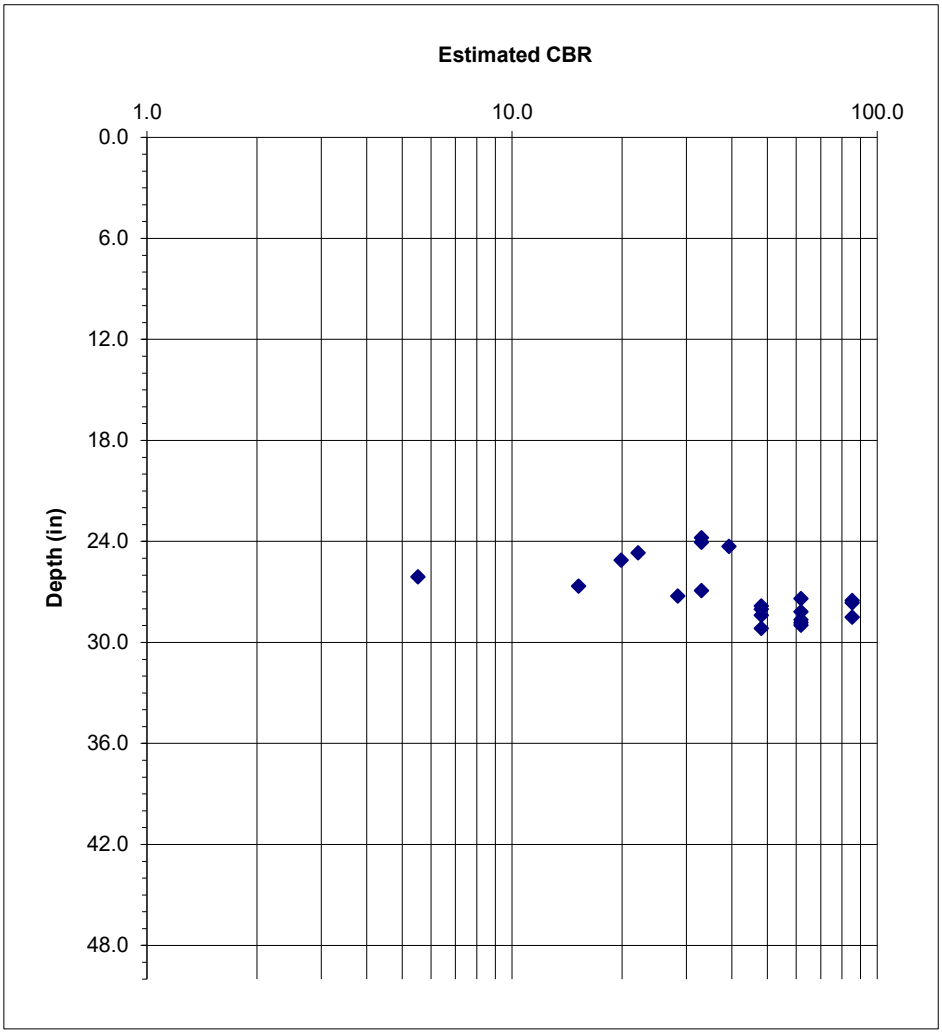
23	259
24	263
25	275



TSi Geotechnical Inc.
8248 NW 101st Terrace, #5
Kansas City, MO 64153

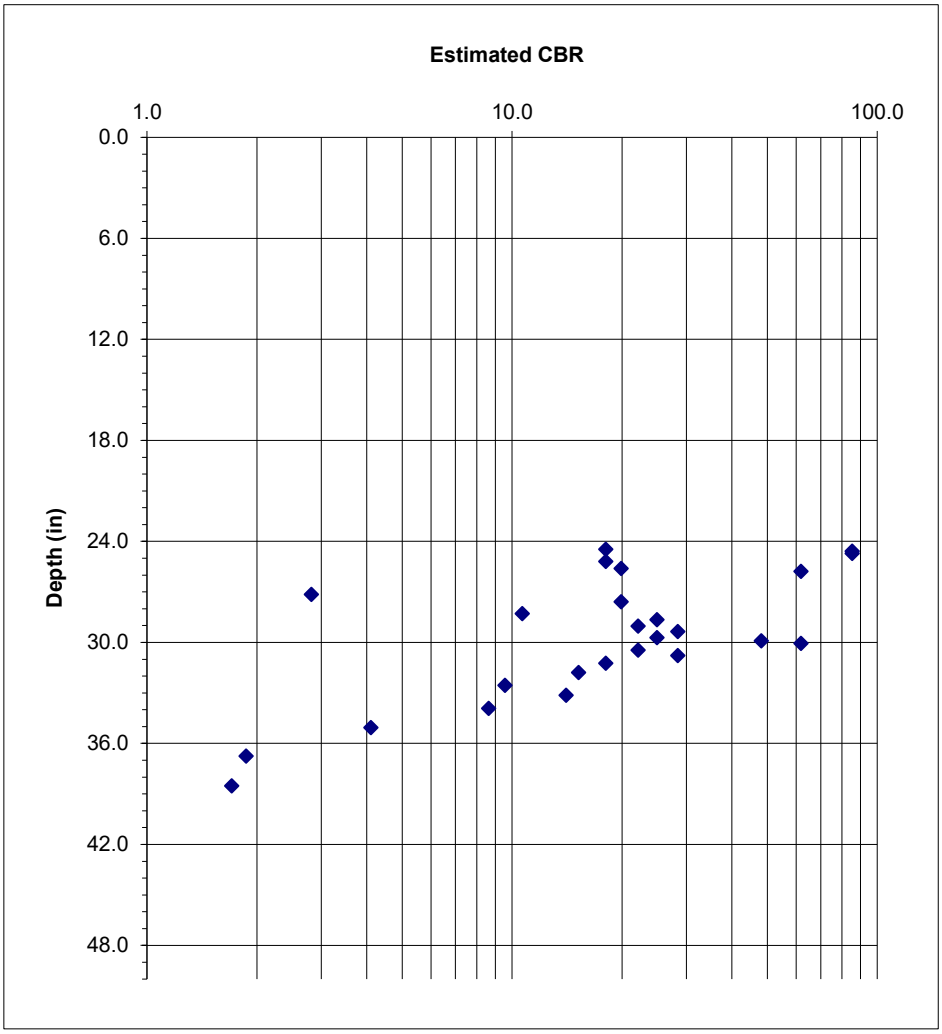
DCP Test Data

Project Name: KCI Airport Taxiway E
Project Number: 20212063
Location: Kansas City, MO
Date: 02-12-21
Technician: AB/CK

TEST RESULTS

Boring
C-11

Pavement Thickness	24.0
Blow count	**Reading (mm)**
Start	111
1	123
2	126
3	129
4	141
5	152
6	156
7	191
8	202
9	220
10	229
11	239
12	247
13	256
14	261
15	265
16	275
17	283
18	295
19	309
20	328
21	343
22	363
23	392
24	435
25	480



APPENDIX D

Pavement Core Photographs
Pavement Surface Photographs

C-1 **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**24.5**	Unbonded at 17.75”

C-2 **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**24.5**	Unbonded at 17.0”

C-3B **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**24.5**	Unbonded at 17.25”

C-4 **KCI Taxiway E** **20212063**



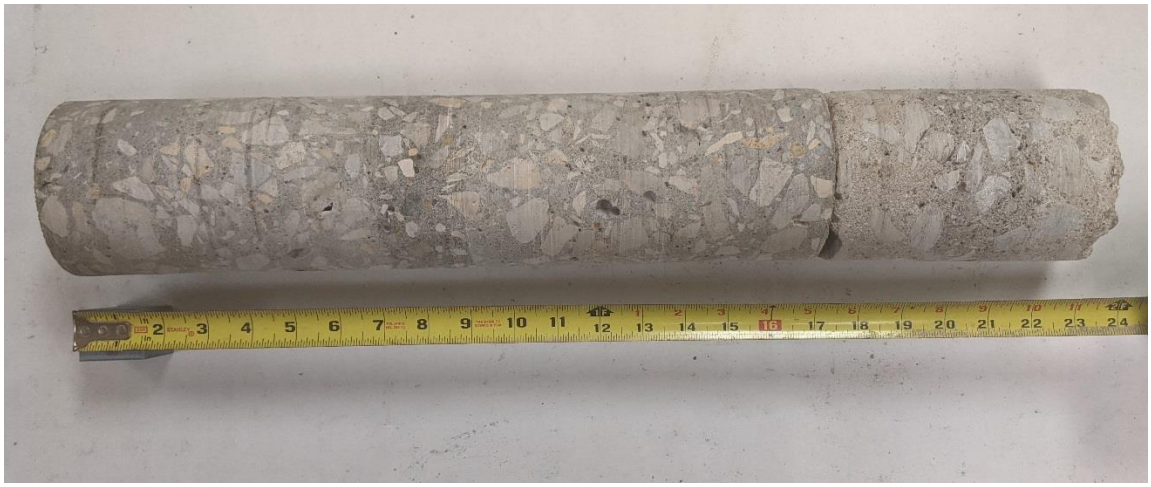
Material	Thickness (in)	Notes
Concrete	**24.0**	Unbonded at 18.0”

C-5 B **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**24.5**	Unbonded at 17.0”

C-6 **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**23.5**	Unbonded at 17.0”

C-7 **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**24.75**	Unbonded at 18.0”

C-8B **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**24.75**	Unbonded at 17.5”

C-9 **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**23.5**	Unbonded at 16.5”

C-10B **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**23**	Unbonded at 16.5”

C-11 **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**24.0**	Unbonded at 17.5”

C-12 **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**25.0**	Unbonded at 17.25”

C-13B **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**25.25**	Unbonded at 17.5

C-14 **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**24.25**	Unbonded at 17.25”

C-15B **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Concrete	**23.5**	Unbonded at 16.25”

C-16 **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Asphalt	**8.25**	

C-17 **KCI Taxiway E** **20212063**



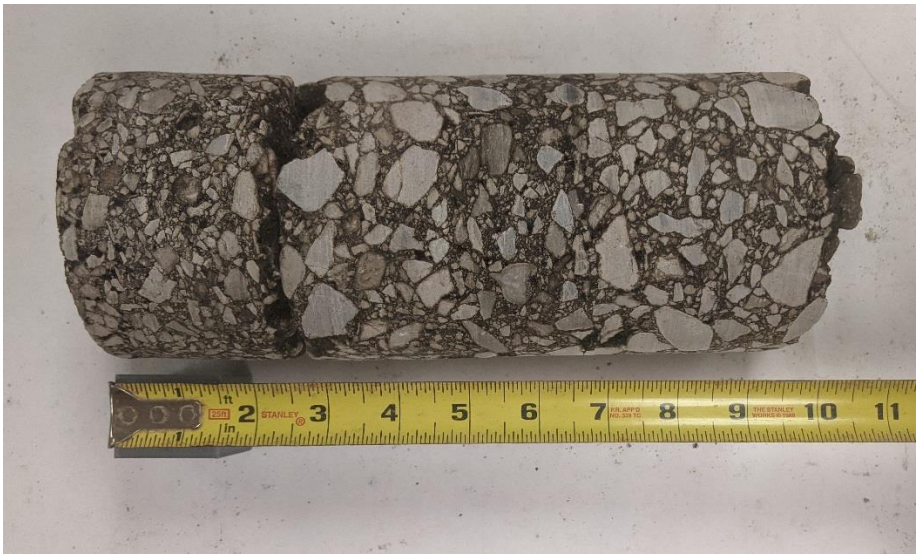
Material	Thickness (in)	Notes
Asphalt	**7.75**	Material Fragmented due to level of weathering

C-18 **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Asphalt	**9.5**	Unbonded at 5.5”

C-19 **KCI Taxiway E** **20212063**



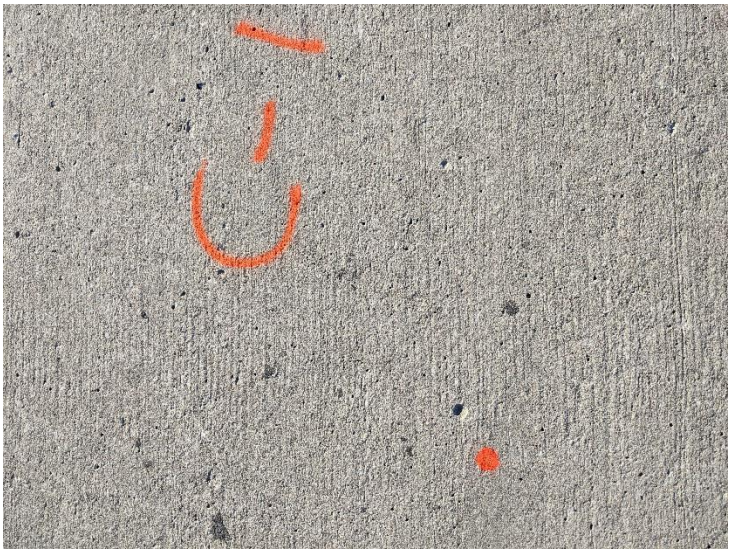
Material	Thickness (in)	Notes
Asphalt	**10.25**	Unbonded at 2.5

C-20 **KCI Taxiway E** **20212063**



Material	Thickness (in)	Notes
Asphalt	**8.75**	

C-1 **KCI Taxiway E** **20212063**



C-2 **KCI Taxiway E** **20212063**



C-3B **KCI Taxiway E** **20212063**



C-4 **KCI Taxiway E** **20212063**



C-5 B **KCI Taxiway E** **20212063**



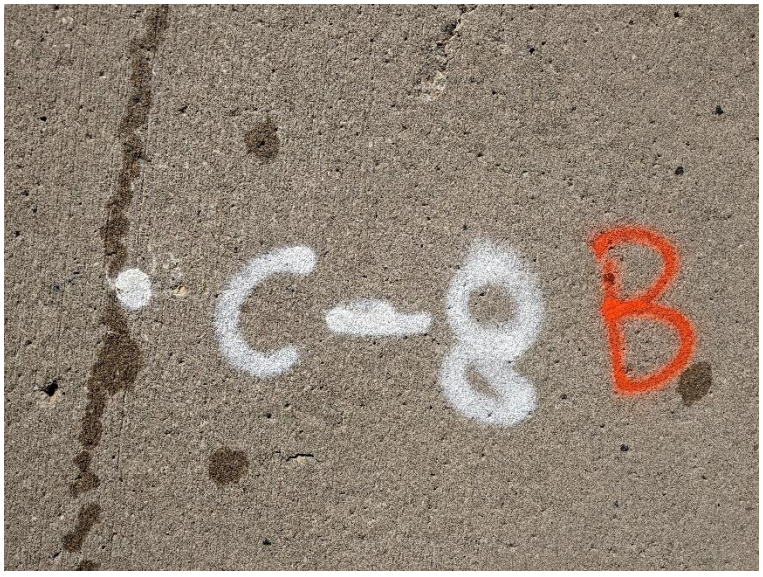
C-6 **KCI Taxiway E** **20212063**



C-7 **KCI Taxiway E** **20212063**



C-8B **KCI Taxiway E** **20212063**



C-9 **KCI Taxiway E** **20212063**



C-10B **KCI Taxiway E** **20212063**



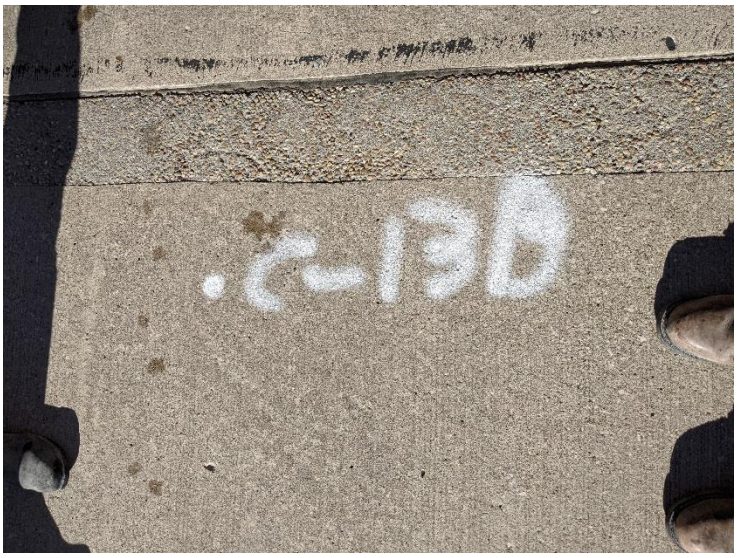
C-11 **KCI Taxiway E** **20212063**



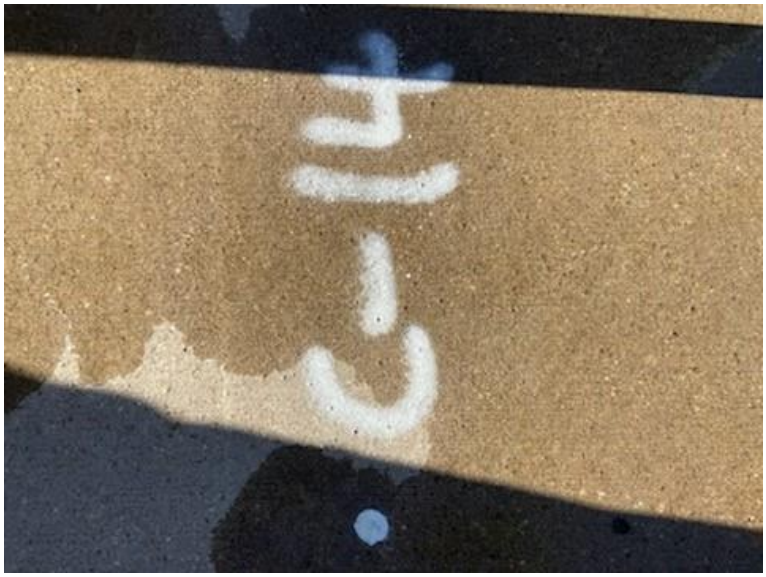
C-12 **KCI Taxiway E** **20212063**



C-13B **KCI Taxiway E** **20212063**



C-14 **KCI Taxiway E** **20212063**



C-15B **KCI Taxiway E** **20212063**



C-16 **KCI Taxiway E** **20212063**



C-17 **KCI Taxiway E** **20212063**



C-18 **KCI Taxiway E** **20212063**



C-19 **KCI Taxiway E** **20212063**



C-20 **KCI Taxiway E** **20212063**



CONSTRUCTION SAFETY AND PHASING PLAN (CSPP)

TAXIWAY E AND TAXIWAY J REHABILITATION

Kansas City International Airport (MCI)

FINAL

FEBRUARY 9TH, 2023

KCAD Project No. 62230566
AIP No. 3-29-0040-090 & 091

PREPARED FOR –
Kansas City International Airport (MCI)

Kansas City Department of Aviation (KCAD)
601 Brasilia Avenue
Kansas City, MO 64153

PREPARED BY – HNTB Corporation

HNTB Corporation
715 Kirk Drive
Kansas City, MO 64105

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APPENDIX A Project Safety and Phasing Plan Sheets

APPENDIX B FAA Guide to Ground Vehicle Operations

Aviation safety is the primary consideration at airports, especially during construction. This Construction Safety and Phasing Plan (CSPP) will serve as a companion document to the project plans and specifications for the Taxiway E and Taxiway J Rehabilitation Project and has been written in compliance with FAA AC 150-5370-2G; Operational Safety on Airports During Construction. The phasing developed for this project is intended to mitigate disruption to aircraft operations during construction while providing a logical sequence of construction activities. The subsequent sections of this document will address scheduling, coordination, and airfield safety precautions as they relate to the Taxiway E and Taxiway J Rehabilitation Project.

Written approval of this CSPP must be received, from the FAA project manager, prior to the project advertisement. This CSPP is a document that will evolve throughout the project and may be amended through the addition of FAA approved supplements and attachments. Changes will not be made to the CSPP, without their review and approval by the FAA project manager.

1) Coordination

a) Project Contacts. Below is a comprehensive list of parties involved during design of the Taxiway E and Rehabilitation Project.

Table 1 Design Contacts

Organization	Role	Point of Contact	Contact Information
HNTB Corporation	Consultant (Airfield Design)	Lynette Mellett, P.E.	(913) 488-1079
		Matt Walsh, P.E.	(312) 798-0253
TREKK Design Group, LLC	Consultant (Topographic Survey)	Travis Biddinger, PLS	(816) 877-8675
Custom Engineering, Inc.	Consultant (Airfield Electrical Design)	Walter May, P.E.	(314) 802-0920
TSi Geotechnical, Inc.	Consultant (Geotechnical Exploration)	Shannon Stafford	(816) 599-7965
Applied Pavement Technology, Inc.	Consultant (Airfield Pavement Design)	Gen Long, P.E.	(217) 398-3977
City of Kansas City Aviation Department	Sponsor Project Manager	Mallie Hare	(816) 243-3037
Federal Aviation Administration	ADO Manager	Ed Hyatt	(816) 329-2605
Federal Aviation Administration	FAA Project Manager	Anthony Pollard	(816) 329-2619
Federal Aviation Administration	FAA ATO Tech Ops	Jase Jones	(816) 329-2780

b) Design Submittals. Throughout design, coordination between HNTB Corporation (HNTB), the Kansas City Aviation Department (Sponsor), and the Federal Aviation Administration (FAA) was required. The project Design Report was reviewed by the Sponsor and FAA at 60%. Reviews of the project documents will again be performed at the 90% and Issued for Bid (IFB) design submittal. Below is a summary of the project schedule to date.

Table 2 Project Schedule

Submittal	Date
60% Submittal	12/2/2022
90% Submittal	1/20/2022
Issued For Bid	2/9/2023
Pre-Bid Meeting	TBD
Bid Opening	3/17/2023
Pre-Construction Meeting	TBD
Notice to Proceed	6/5/2023

c) Pre-Bid Meeting (TBD). A pre-bid conference will be held at Kansas City International (MCI) at least 10 days prior to the bid opening in order to provide contractors and material suppliers the opportunity to ask project specific questions. Below is a general outline of topics that will be discussed at the meeting.

(1) Project Overview

(a) Phasing and Runway Closures

(b) Operational Considerations

(2) Proposal Requirements

(a) DBE Requirements

(3) Safety Plan Compliance Document (SPCD)

(4) Site tour

d) Preconstruction Meeting (TBD). After the bid opening and selection of a contractor, a pre-construction conference will be scheduled in order to discuss operational safety, phasing, testing, quality control/quality acceptance, labor requirements, environmental factors, and potential issues that could arise during construction. The meeting will be scheduled within 10 days of the notice to proceed. Below is a general outline of topics that will be discussed at the meeting.

(1) Project Overview and Safety Items

(2) Construction Items

(a) Phasing and Runway Closures

(b) Operational Considerations

(3) Labor Requirements

(4) Civil Rights Requirements

(5) Environmental Requirements

e) Contractor Progress Meetings. In addition to the pre-construction conference, operational safety will be a standing agenda item, which shall be addressed at each Contractor progress meeting. These meetings will also address weekly construction issues, administrative issues such as change orders and/or pay estimates, and any coordination required with the FAA ATO and or the Sponsor in relation to opening/closing sections of pavement, issuing notice to airmen (NOTAMs), or impacting navigational aids (NAVAIDs) in each phase as construction progresses. Below is a draft list of parties that will be involved during construction. The list will be updated after the contract is awarded to include all necessary contact information.

Table 3 Construction, Emergency and Utility Contacts

Organization	Role	Point of Contact	Contact Information
CONSTRUCTION			
HNTB Corporation	Consultant (Resident Engineer)	Brian Johnson, P.E	(563) 200-2106
Custom Engineering. Inc.	Consultant (Airfield Electrical Design)	Walter May, P.E.	(314) 802-0920
TSi Geotechnical, Inc.	Consultant (Material Testing)	Shannon Stafford	(816) 599-7965
City of Kansas City Aviation Department	Sponsor (Project Manager)	Mallie Hare	(816) 243-3037
	MCI Airport Operations/Manager	Bob Johnson	(816) 243-5248
	MCI Airport Security Manager	Alex Gichuiri	(816) 243-3167
	MCI Airport Maintenance	TBD	TBD
	MCI Airport Electrical	Major Davis	(816) 243-7388
Federal Aviation Administration	ADO Manager	Ed Hyatt	(816) 329-2605
	FAA Project Manager	Anthony Pollard	(816) 329-2619
	FAA ATCT Manager	Ryan Grampp	(816) 329-2701
	FAA ATO Tech Ops	Jase Jones	(816) 329-2780
Contractor (TBD)	Contractor Project Manager	TBD	TBD
	Contractor Superintendent	TBD	TBD
	Contractor Safety Manager	TBD	TBD

Organization	Role	Point of Contact	Contact Information
Subcontractor (TBD)	Subcontractor Contact	TBD	TBD
Contractor QC Testing Firm (TBD)	Quality Control Testing	TBD	TBD
EMERGENCY			
St. Luke's Northland Hospital	Medical		(816) 880-6040
KCI Airport Fire Department	Fire Fighting/ARFF		(816) 243-4000
KCI Airport Police	Police		(816) 243-4000
UTILITY			
Federal Aviation Administration	Utilities & Facilities (Includes Locates)		(816) 329-2780
MCI Airport Electrical	Utility-Airfield Lighting	Major Davis	(816) 243-7388
Missouri One Call	Utility Locate		(800) 344-7483
Evergy	Utility-Electric Power		
KCMO Water Department	Utility-Water		

2) Phasing

Project Overview. The Taxiway E and Taxiway J Rehabilitation Project is a single bid package, which covers all three phases of the project. The work associated with the project includes the following elements:

- Rehabilitation of the top surface pavement of Taxiway E
- Rehabilitation of the top surface pavement of Taxiway J between Taxiway C and D
- Rehabilitation of the shoulder pavement of Taxiway E and Taxiway J
- Airfield lighting replacement and improvements for existing centerline and edge light fixtures.

Table 4 Work Area Activities

Work Area	Work Activities	Duration (Calendar Days)
A	• Surface PCC Rehabilitation: Taxiway E between Taxiway D and Taxiway E2 • Surface PCC Rehabilitation: Taxiway E shoulders • Airfield Lighting Installation • Pavement Marking	110
B	• Top Layer PCC Rehabilitation: Taxiway E between Taxiway E7 and Runway 9-27 RSA • Surface PCC Rehabilitation: Taxiway E shoulders • Airfield Lighting Installation • Pavement Marking	89
C	• Top Layer PCC Rehabilitation: Taxiway J between Taxiway C and Taxiway D • Asphalt Mill and Overlay: Taxiway J shoulders • Airfield Lighting Installation • Pavement Marking	45

Figure 1 Phasing Durations

	CONSTRUCTION DURATION DAYS	CALENDAR YEAR 2023					
		JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER
		PHASE 1		PHASE 2		PHASE 3	
WORK AREA A	110						
WORK AREA B	89						
WORK AREA C	45						

Phase 1. This phase consists of the rehabilitation of the north half of Taxiway E, between Taxiway D and E2, including adjacent shoulder pavement. The north half of the taxiway is bounded to the north and west by the Rehabilitate Taxiway F Project (2018) and to the south and east by the Rehabilitate RWY 1R-19L Project (2014). The associated closures include the connector taxiways from Runway 1R-19L to Taxiway F for the phase duration.

Phase 1 may begin following the Notice to Proceed (NTP). Phase 1 is anticipated to start in the late Spring of 2023. Phase 1 work consists only of Work Area A.

Phase 1

Construction Activities

- Place barricades and closure markings
- Remove pavement markings temporarily
- Cover/disconnect/jumper/remove airfield lighting/signage temporarily
- Demo taxiway surface pavement
- Demo taxiway shoulder surface pavement
- Construct taxiway surface pavement
- Construct taxiway shoulder surface pavement
- Airfield lighting improvements
- Install temporary/ permanent pavement marking

Areas to be Closed to Aircraft Operations - During Phase 1, the following areas will be closed to aircraft operations:

- Work Area A
  - Taxiway E (between Taxiway D and E2)
  - Taxiway E3, E4, E5, K (between Runway 1R-19L and Taxiway F)

Duration of Closures - The total duration of Phase 1 is 66 Calendar Days.

Construction Access and Haul Routes – The contractor shall access the staging area and site via Mexico City Avenue and Paris Street. A temporary haul road and AOA access gate will be required from the staging area. The contractor may utilize the Airport Perimeter Road to access the Phase 1 work area. A flagger will be required for traffic crossing Taxiway F. Alternate access routes to the staging area and site shall require approval by the KCAD.

Taxi Routes – During Phase 1 construction, Taxiway F will remain open to air traffic. Taxiway F will be restricted to ADG IV aircraft only. Runway 1R-19L will remain operational for both north and south flow operations. Aircraft landing on 1R will be required to exit at Taxiway D or Taxiway E2. All other taxi routes along the dual parallels will remain unchanged from normal routes.

Phase 2. This phase consists of the rehabilitation of the south half of Taxiway E, between Taxiway E7 and the Runway 9-27 runway safety area (RSA), and the north half of Taxiway E, between Taxiway D and E2, including adjacent shoulder pavement. The south half of the taxiway is bounded to the north and east by the Rehabilitate RWY 1R-19L Project (2014) and to the south and west by the Rehabilitate Taxiway F Project (2018). The north half of the taxiway is bounded to the north and west by the Rehabilitate Taxiway F Project (2018) and to the south and east by the Rehabilitate RWY 1R-19L Project (2014). The associated closures include the connector taxiways from Runway 1R-19L to Taxiway F for the phase duration.

Phase 2 may begin following the completion of Phase 1. Phase 2 work consists of Work Area A and B.

Following the completion of Phase 2, the north half of Taxiway E would reopen. After the taxiway is reopened, the KCAD cannot deice/ treat the runway pavement with chemicals during winter operations in accordance with FAA PCC specification requirements.

Phase 2

Construction Activities

- Place barricades and closure markings
- Remove pavement markings temporarily
- Cover/disconnect/jumper/remove airfield lighting/signage temporarily
- Demo taxiway surface pavement
- Demo taxiway shoulder surface pavement
- Construct taxiway surface pavement
- Construct taxiway shoulder surface pavement
- Airfield lighting improvements
- Install temporary/ permanent pavement marking

Areas to be Closed to Aircraft Operations - During Phase 2, the following areas will be closed to aircraft operations:

- Work Area A
  - Taxiway E (between Taxiway D and E2)
  - Taxiway E3, E4, E5, K (between Runway 1R-19L and Taxiway F)
- Work Area B
  - Taxiway E (between Runway 9-27 RSA and Taxiway E7)
  - Taxiway E6 (between Runway 1R-19L and Taxiway F)

Duration of Closures - The total duration of Phase 2 is 44 Calendar Days.

Construction Access and Haul Routes – The contractor shall access the staging area and site via Mexico City Avenue and Paris Street. A temporary haul road and AOA access gate will be required from the staging area. The contractor may utilize the Airport Perimeter Road to access the Phase 2 work area. An additional temporary haul route shall be required from the Airport Perimeter Road to Taxiway F at Taxiway E6 for Work Area B. A flagger will be required for traffic crossing Taxiway F for Work Area A and B. Alternate access routes to the staging area and site shall require approval by the KCAD.

Taxi Routes – During Phase 2 construction, Taxiway F will remain open to air traffic. Taxiway F will be restricted to ADG IV aircraft only north of Taxiway D. Runway 1R-19L will remain operational for both north and south flow operations. While Work Area A and B occur

concurrently, aircraft landing on Runway 1R will be required to exit at Taxiway D or Taxiway E2. Aircraft landing on Runway 19L will be required to exit at Taxiway D or Taxiway E7. All other taxi routes along the dual parallels will remain unchanged from normal routes.

Phase 3. This phase consists of the rehabilitation of Taxiway J, between Taxiway C and D, the south half of Taxiway E, between Taxiway E7 and the Runway 9-27 runway safety area (RSA) and the adjacent shoulder pavement. Taxiway J is bounded to the east by the Rehabilitate RWY 1R-19L Project (2014), to the south and west by the rehabilitation of Taxiway C (2017), to the north by the Rehabilitate Taxiway D Project (2019). The south half of the taxiway is bounded to the north and east by the Rehabilitate RWY 1R-19L Project (2014) and to the south and west by the Rehabilitate Taxiway F Project (2018). The associated closures include the connector Taxiway J between Taxiways C and D, Taxiway C between Taxiway C6 and F and the connector taxiways from Runway 1R-19L to Taxiway F for the phase duration.

Phase 3 may begin following the completion of Phase 2. Phase 2 work consists of Work Area B and C.

Following the completion of Phase 3, all project areas would reopen. After the taxiway is reopened, the KCAD cannot deice/ treat the taxiway pavement with chemicals during winter operations in accordance with FAA PCC specification requirements.

Phase 3

Construction Activities

- Place barricades and closure markings
- Remove pavement markings temporarily
- Cover/disconnect/jumper/remove airfield lighting/signage temporarily
- Demo taxiway surface pavement
- Construct taxiway surface pavement
- Asphalt Mill and Overlay shoulder pavement
- Airfield lighting improvements
- Install temporary/ permanent pavement marking

Areas to be Closed to Aircraft Operations - During Phase 3, the following areas will be closed to aircraft operations:

- Work Area B
  - Taxiway E (between Runway 9-27 RSA and Taxiway E7)
  - Taxiway E6 (between Runway 1R-19L and Taxiway F)
- Work Area C
  - Taxiway J (between Taxiway C and D)
  - Taxiway C (between Taxiway C6 and F)

Duration of Closures - The total duration of Phase 3 is 45 Calendar Days.

Construction Access and Haul Routes – The contractor shall access the staging area and site via Mexico City Avenue and Paris Street. A temporary haul road and AOA access gate will be required from the staging area. The contractor may utilize the Airport Perimeter Road to access Work Area C via Ottawa Avenue around existing Terminal C. A flagger will be required for traffic crossing Taxiway D. An additional temporary haul rout shall be required from the Airport Perimeter Road to Taxiway F at Taxiway E6 for Work Area B. A flagger will be required for traffic crossing Taxiway F. Alternate access routes to the staging area and site shall require approval by the KCAD.

Taxi Routes – During Phase 3 construction, Taxiway D and F will remain open to air traffic. Taxiway C and Taxiway J will be closed as listed above. Runway 1R-19L will remain operational for both north and south flow operations. During Work Area B work, aircraft landing on Runway 1R will be required to exit at Taxiway D or Taxiway E2 and aircraft landing on Runway 19L will be required to exit at Taxiway D or Taxiway E7. All other taxi routes along the dual parallels will remain unchanged from normal routes.

ARFF Access Routes - ARFF access on the airfield will be the same as available for taxi access for aircraft, as described in Phase 1, Phase 2, and Phase 3 Taxi Routes and shown on Plan Sheet G03. All construction activities will be coordinated with operations, the ARFF, and the emergency responders before and during construction phase changes. The Contractor shall work with ARFF personnel to ensure that emergency response times can be met during the construction.

Construction Staging Areas – The Contractor is provided one central staging area at an existing airport parking lot outside of the AOA along Paris Street. This will also be the location available for the Contractor batch plant and any stockpiling of materials. For all phases this is the only staging area allowed for employee parking, material storage, equipment storage, and material delivery. Access to the AOA will be provided via a temporary AOA access gate installed by the Contractor.

Impacts to NAVAIDs – The Taxiway E and Taxiway J Rehabilitation Project will not impact any NAVAIDS.

Available Runway Length and Declared Distances – Runway 1R-19L's runway length and declared distances will not be affected as part of the Taxiway E and Taxiway J Rehabilitation Project.

3) Areas and Operations Affected by the Construction Activity

The safety and phasing plans (G sheets of the project plan sheets) depict the areas located on the airfield that will be affected by construction activities as well as details for the methods of maintenance of traffic and safety. These plan sheets have been included in **Appendix A** for reference. For specific phase information regarding taxiway closures refer to Section 2) Phasing. Below is the phasing specific table that outlines normal (existing) and construction (anticipated) conditions on the airfield. For brevity, only runways and taxiways that will be impacted by construction have been included in the table. For the scope of work associated with each phase refer to Section 2) Phasing.

Table 5 Effects of Construction on Operations

Project	**Taxiway E and Taxiway J Rehabilitation Project**			
Operational Requirements	**Existing**	**Phase 1**	**Phase 2**	**Phase 3**
RUNWAY 1R-19L	ADG V	Open	Open	Open
TAXIWAY C	ADG V	Open	Open	Closed (between TWY C6 and TWY F)
TAXIWAY E	ADG V	Closed (between TWY E2 and TWY D)	Closed	Closed (between TWY E7 and RWY 9-27 RSA)
TAXIWAY E1	ADG V	Open	Open	Open
TAXIWAY E2	ADG V	Open	Open	Open
TAXIWAY E3	ADG V	Closed	Open	Open
TAXIWAY E4	ADG V	Closed	Closed	Open
TAXIWAY E5	ADG V	Closed	Closed	Open
TAXIWAY E6	ADG V	Open	Closed	Closed
TAXIWAY E7	ADG V	Open	Open	Open
TAXIWAY E8	ADG V	Open	Open	Open
TAXIWAY F	ADG V	Open (ADG IV operations north of TWY D)	Open (ADG IV operations north of TWY D)	Open
TAXIWAY J	ADG V	Open	Open	Closed (between TWY C and TWY D)
TAXIWAY K	ADG V	Closed (between RWY 1R-19L and TWY F)	Closed (between RWY 1R-19L and TWY F)	Open
ARFF Index	C	C	C	C

The KCAD has indicated that there may be additional airfield projects that may occur concurrently with this Project. These projects may include, but are not limited to, the removal of Terminals B and C, and the rehabilitation of the existing Terminal B apron pavement adjacent to Taxiway D.

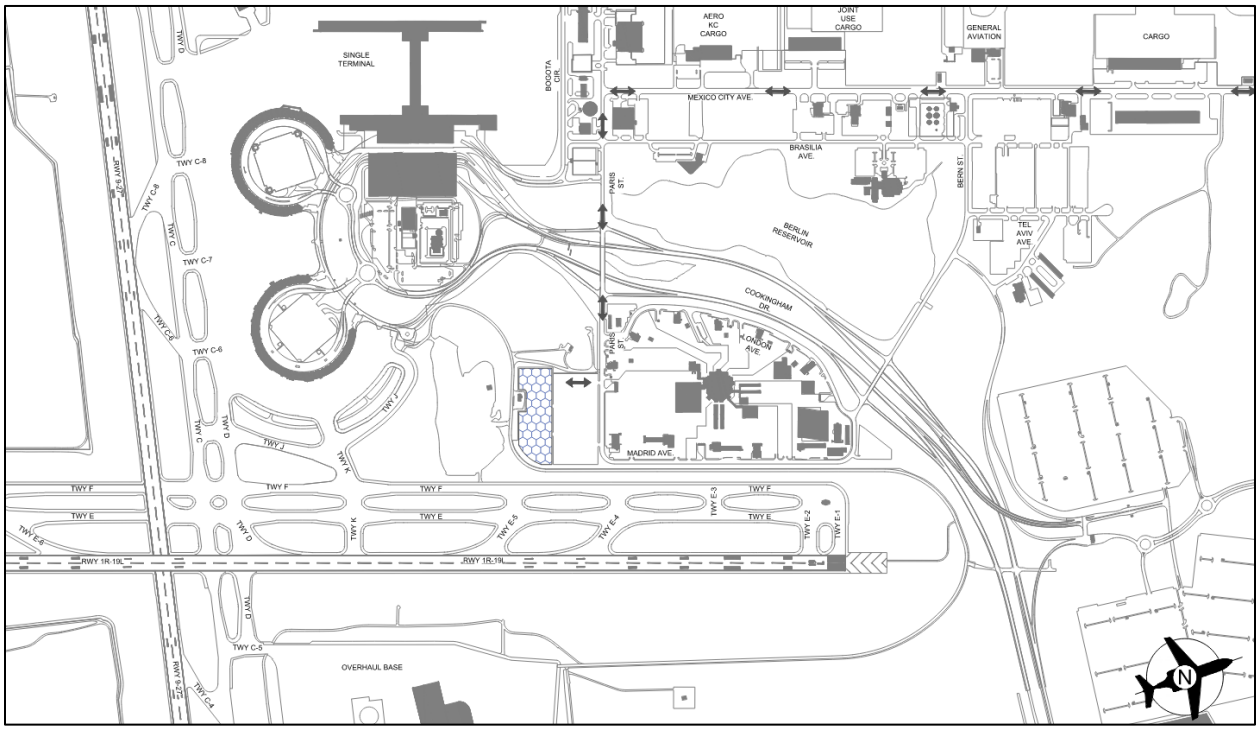
4) Protection of Navigation Aids (NAVAIDs)

The Taxiway E and Taxiway J Rehabilitation Project will not impact any NAVAIDS associated with Runway 1R-19L.

5) Contractor Access

a) Location of Stockpiled construction materials. The Contractor will have one central staging area at the existing airport parking lot along Paris Street outside of the AOA. This will also be the location available for the Contractor batch plant and any stockpiling of materials. For all phases this is the only staging area allowed for material storage, equipment storage, and material delivery. All employee and private vehicles shall be confined to the Contractor's employee parking area. The contractor shall access the staging area and site via Mexico City Avenue and Paris Street. Alternate access routes to the staging area and site shall require approval by the KCAD. The stockpiling of materials will only be permitted within the boundaries of the staging area and the stockpiles shall not exceed 20 feet in height.

Figure 2 Staging Area Location



b) Vehicle and Pedestrian Operations. Access to the air operations area (AOA) will be granted through a temporary AOA access gate as shown on sheet G03 in **Appendix A**. The staging area and plant location will be accessed as described above in Section 4.a. The Contractor may access the construction area via the Airport Perimeter Road and temporary haul roads.

All employee and private vehicles shall be confined to the Contractor's employee parking area. Only the Contractor's construction vehicles will be allowed in the AOA. It is the responsibility of

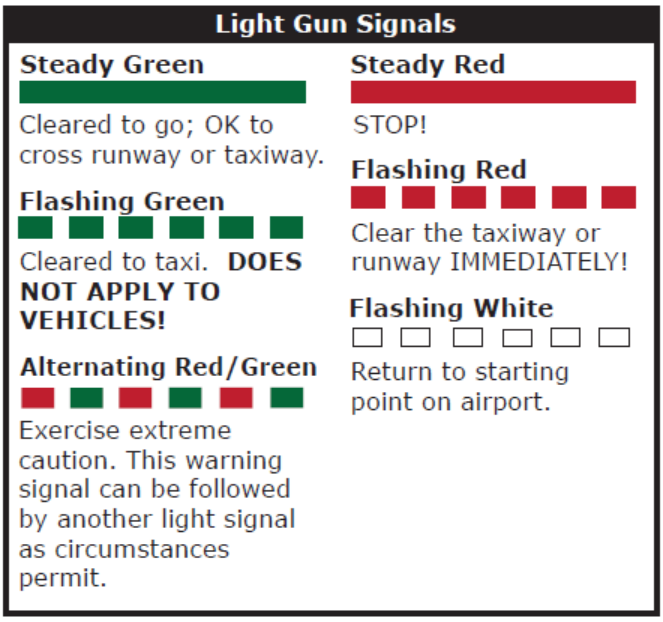
the Contractor to provide vehicles that are authorized to operate on the site. These vehicles will be identified with the Contractor's name on the side of the vehicle and shall be equipped with a flashing amber warning light. These vehicles must also undergo an operations and security check and shall display at all times an airport issued AOA access sticker on the windshield. In addition to vehicles, the Contractor shall identify employees and subcontractor employees which require unescorted access. These individuals will have to complete an airport provided drivers training course in order to be issued an airport identity badge. Once obtained, the airport issued identity badge must be worn by the individual and be visible at all times while in the AOA. If a badged employee leaves the employment of the Contractor, the badge must be returned to the Airport ID Office. All airport access media, including identification badges are to be returned to the Airport ID Office upon project completion.

All non-badged drivers and all non-AOA access sticker identified vehicle will be escorted at all times by properly ID badged personnel, in vehicles properly identified, inspected, and granted access into the AOA. A maximum of two vehicles may be escorted at one time, by a properly identified and badged personnel and vehicle. All non-badged Contractor personnel will be under the direct supervision of an airport badged Contractor employee, whom has responsible charge of the work crew.

c) Two-way Radio Communication. All Contractor employees required to maintain contact with the air traffic control tower (ATCT) must first complete an airport provided movement area, drivers training course in order to be issued an airport identity badge. Drivers wanting to enter a runway or taxiway (movement areas) must first get permission from the air traffic control tower (ATCT). Taking this into consideration, Contractor and subcontractor employees with escort credentials are required to maintain communications with air traffic while inside the AOA via two-way radio. The Contractor will furnish and maintain a handheld radio for each crossing guard, each gate guard, each foreman on the AOA, and the project superintendent, in order to monitor air traffic frequencies and keep a heightened sense of awareness in areas adjacent to project limits that are open to air traffic. Additional personnel may be required to monitor air traffic radio frequencies as necessary. All Contractor furnished radios will be capable of operating on the following frequency: 121.80 MHz. For those unfamiliar with communicating with ATCT, refer to the "Towered Airports" section of **Appendix B** for guidance on radio communications procedures.

Air traffic controllers have a backup system for communicating if radios fail. Controllers use a light gun that flashes different colors to tell pilots or drivers what to do. Figure 3 contains light gun signals used to communicate with drivers in the event radio communication fails. Refer to the "Airfield Signs, Markings and Lighting" section of **Appendix B** for further information regarding vehicle light gun signals.

Figure 3 Light Gun Signals



d) Airport Security and Badging Requirements. Access to secured areas, security identification display area (SIDA), air operations areas (AOA), sterile areas and other areas at MCI requires Kansas City International Airport Identification (ID) Media. Airport ID Media will only be issued upon successful completion of all Transportation Security Administration (TSA) and Airport required security checks. Additional information including frequently asked questions (FAQs) and additional forms can be found by accessing the Kansas City International Airport Security Office. **Figure 4** on the following page displays the AOA and SIDA at MCI.



Figure 4 MCI AOA and SIDA

6) Wildlife Management

Various Contractor operations during construction can directly or indirectly create wildlife hazards at airports. One indirect wildlife hazard that can be created by Contractor personnel activity is the generation of trash. Food scraps must be collected from construction personnel and disposed of appropriately. It is the responsibility of the Contractor to make arrangements for trash removal from the project site as well as the Contractor's staging area. Trash must be removed from the site on a weekly basis as a minimum requirement. Should this practice prove to be inadequate, the Contractor will be asked to increase the frequency of trash removal.

Standing water is a potential wildlife hazard that can be created from construction activity or rainfall events. For all phases of the project, standing water will not be allowed to stand after a rain event for more than 48 hours. The Contractor will take precautions and have ready, at no additional cost to the project, a pump to remove standing water from the project area by pumping to the nearest storm water inlet.

Tall grass and seeds represent another wildlife attractant on airfields. The Contractor is responsible for maintaining the staging area allocated for him including keeping the area free from tall stands of grass. Seeding of the project site also represents a construction activity that can attract wildlife. New plantings should not contain millet, ryegrass, other large seed producing varieties or clover. For specific project seeding requirements refer to the T-901 specification.

The Contractor's staging area is adjacent to the AOA perimeter fence. The Contractor will inspect the condition of the AOA fence in the staging area on a weekly basis to ensure the fence has not been compromised at any location affording wildlife the opportunity to enter the AOA. In the event of a wildlife encounter (ie. dog, fox, coyote, etc.) within the AOA, the Contractor shall immediately contact Airport Operations. Refer to **Table 3** for Airport Operations contact information.

7) Foreign Object Debris (FOD) Management

It is the responsibility of the Contractor to ensure that construction activities do not impact regularly scheduled aircraft operations which includes maintaining a clean project site free from the threat of FOD. The Contractor and its employees will be held responsible for maintaining the project area and keeping it free from FOD whether it is generated from the project site or other airfield areas. Everyone inside the AOA is responsible for the removal of FOD regardless of its origin. In project areas that require the temporary closure of airfield pavement, Airport Personnel will have the final word on the acceptance of cleaned construction areas prior to opening the area for aircraft operations. At a minimum, the final 30 minutes prior to the time airfield pavement is to be opened shall be used for cleanup and to inspect the area for FOD. The Contractor will use a street sweeper or vacuum truck to clean airfield pavement prior to opening to air traffic.

8) Hazardous Materials (HAZMAT) Management

The requirements of the hazardous waste regulations established by the USEPA are presented in 40 CFR 261 through 270. Wastes that are hazardous and regulated under RCRA are classified as either listed or characteristic wastes.

Listed wastes are considered to be hazardous regardless of the concentrations of hazardous chemicals contained in the waste. Please refer to 40 CFR 261.31 through 261.33 for specific information regarding listed wastes. If a waste is not listed the generator should determine if a waste exhibits any of the characteristics of a hazardous waste: ignitability, corrosivity, reactivity, and toxicity. The Contractor will submit a plan that addresses the management of hazardous and non-hazardous waste in accordance with FAA AC 150/5320-15A, Management of Airport Industrial Waste and

include it in its SPCD. The plan must address such issues as fuel deliveries, spill recovery procedures, the availability of Material Safety Data Sheets (MSDS), and other considerations.

9) Notification of Construction Activities

A tentative list of construction and emergency contacts for the Taxiway E and Taxiway J Rehabilitation Project can be found in **Table 3**. Upon award of the project, the Contractor will provide all appropriate contact information for its staff and subcontractors in its SPCD such as project managers, project superintendents, and safety managers. Once the list is obtained, **Table 3** in this document will be updated to provide a comprehensive list of construction and emergency contact information. Should any personnel change occur during the project, it is the responsibility of that organization to provide revised contact information to the Engineer and the Sponsor.

The Notice to Airmen (NOTAM) system provides essential information to personnel concerned with flight and airport operations. NOTAMs provide timely information on unanticipated or temporary changes to components of or hazards in the National Airspace System (NAS) which includes the closure of runways and taxiways. During construction, it will be necessary to close taxiway pavement which will require a NOTAM to be issued. A minimum of 72 hours written notice (weekends excluded) of requested closing shall be directed to the Resident Project Representative (RPR) who will then coordinate the request with the Kansas City International Airport Operations. Only the FAA may issue or cancel NOTAMs on shutdown or irregular operation of FAA owned facilities. Contact information for FAA owned NAVAIDs can be found in **Table 3** and additional information regarding the protection of NAVAIDs and a list of NAVAIDs that require FAA coordination can be found in Section 4) Protection of Navigation Aids (NAVAIDs).

Any person proposing construction or alteration of objects that affect navigable airspace or operational safety of the airport, must notify the Sponsor and the FAA immediately. This includes construction equipment and proposed parking areas for this equipment (i.e. cranes, graders, etc.) on airports. The Contractor should provide HNTB with the appropriate equipment and batch plant heights anticipated to be used during the project. HNTB will prepare FAA Form 7460-1, Notice of Proposed Construction or Alteration, and submit to the Sponsor to forward to the FAA for approval.

The phased construction approach associated with this project creates the potential to impact emergency access routes on the airfield. The Contractor will provide a written notice of changes which will impact the ARFF emergency routes. These notices will be directed through the Resident Project Representative (RPR) who will then coordinate the request with the Kansas City International Airport Operations. Airport Operations will notify the ARFF personnel of any changes to the emergency routing and other potential ARFF impacts, including:

- Rerouting, blocking and restoration of emergency access routes
- Use of hazardous materials on the airfield.

Contact information for ARFF personnel and other emergency contact information can be found in **Table 3**.

10) Inspection Requirements

A Resident Project Representative (RPR) will be onsite for the duration of the Taxiway E and Taxiway J Rehabilitation Project to provide construction oversight and inspection services for the Sponsor on a daily basis. The RPR will ensure conformance with the CSPP, FAA AC 150/5370-2G Inspection Checklist and AC 150/5200-18 for Safety Self-Inspections. The RPR will be responsible for ensuring that the project is constructed in conformance with the contract, plans, and specifications. Should any deviations from the plans and specifications be observed, the Contractor will be required to immediately correct the deviations as instructed by the RPR. The Sponsor will also provide quality assurance/acceptance testing for the project through a separate contract with a materials testing consultant. The Contractor will be responsible for providing quality control testing. The Contractor will identify a Construction Safety Officer in its SPCD as well as a single point of contact for each subcontractor involved on the project. These contacts will be incorporated into **Table 3** in order to provide a comprehensive list of project contacts. The Contractor will also outline in the SPCD its safety policy and internal inspection requirements to ensure airfield safety compliance.

End of phase inspections will be conducted by the RPR, Contractor, and Kansas City International Airport Operations prior to opening airfield pavement to air traffic. In project areas that require the temporary closure of airfield pavement, Airport Operations Personnel will have the final word on the acceptance of cleaned construction areas prior to opening the phase area for aircraft operations. Refer to Section 7) Foreign Object Debris (FOD) Management for additional guidance on cleaning procedures prior to opening pavement.

A Final inspection will also be conducted by the RPR, Contractor, Kansas City Airport Operations, and the Sponsor to confirm that the project has been constructed in accordance with the contract, plans, and specifications. Final acceptance will be determined in accordance with Section 00800.01, Paragraph 50-15 of the General Provisions in the contract documents.

11) Underground Utilities

The Contractor is responsible for contacting the local utility stakeout service for site utility locate requests within the project limits prior to beginning work. The location of these utilities should also be reviewed with the Airport Maintenance staff. Missouri One Call System manages utility locates through its 1-800-DIG-RITE phone contact. Contact information can be found in **Table 3**. The Contractor will also coordinate the identification of all FAA facilities within the project limits prior to beginning work by contacting the FAA. The RPR and Sponsor may assist as necessary for coordination with the FAA. The Contractor will assist utility companies and the FAA in efforts to field verify underground utilities. Below is a list of utility providers at MCI. Contact information for each can be found in **Table 3**.

- Federal Aviation Administration (FAA)
- MCI Airport Electrical
- Evergy
- KCMO Water Department

12) Penalties

The Kansas City International Airport Security Program identifies Individual security violations. The primary Individual Violations are as follows:

- Improper entrance or allowing improper entrance into a Secured Area, SIDA, Sterile Area or AOA.
- Allowing unauthorized entrance into the Secured Area, SIDA, Sterile Area or AOA. *(Note: This violation is a minimum of a 7-day suspension).*
- Failure to properly secure/monitor any access portal that provides access into the Secured Area, SIDA, AOA, and/or Sterile Area.
- Failure to observe Stop & Wait procedures at all security gates.
- Failure to properly display MCI approved Airport Identification Badge in the Secured/SIDA and AOA.
- Piggybacking behind an individual at any access control point, without a valid access need or failure to observe an individual Piggyback behind you.
- Improper escort procedures in the Secured/SIDA, AOA, and Sterile Area.
- Failure to remain at an activated alarm at any Access Control Door/Gate for Law Enforcement or Airport Operations response.
- Failure to challenge an un-badged individual in the Secured Area/SIDA or AOA of the Airport.
- Operating a vehicle in the Secured Area/SIDA or AOA in violation of the Airport's Vehicle Identification Program.
- No pedestrian traffic allowed at any Post Gates.
- Use of Airport ID media, personal or vehicle, that has been reported lost/stolen/unaccountable (minimum 7-day suspension).
- Use of another person's MCI Airport Identification Badge.
- Permitting use of one's MCI Airport Identification Badge by another person.
- Unauthorized testing, tampering, or vandalism of Checkpoint, Screening, or Security Systems.
- Interference with security personnel.
- Tamper or interfere with, compromise, modify, attempt to circumvent any security system, measure, or procedure.

Various penalties exist within the contract documents, plans, and specifications. **Table 6** describes the various violations and subsequent consequences.

Table 6 Penalties for Noncompliance

Violation	Consequence
Exceeding Calendar days allotted for substantial completion of project construction	$2,000/per calendar day
Lost Media Penalty Fee	Secured, SIDA, AOA = $100
*MCI Violations as listed above	1st Offense: Immediate suspension of MCI ID and access media, can be retrieved by offender and supervisor. Attend remedial training.
	2nd Offense: If within 36 months of 1st offense, written notice sent to individual and employer, 7 day suspension of individual's ID and access media. Attend remedial training
	3rd Offense: If within 36 months of 1st offense, revocation of individual's access privileges and ID and access media. Attend remedial training.
*MCI Violations as listed above for items 2 and 12	Immediate minimum of 7 day suspension of individual's MCI ID Media and access Media and attend remedial training

13) Special Conditions

Airport operations take precedence over all work, especially if a question of safety is involved. Special conditions such as low visibility, snow removal, aircraft in distress, aircraft accident, security breach, or work being completed by others may require the rescheduling of Taxiway E and Taxiway J Rehabilitation Project work to accomplish air safety. Full compensation for all costs involved in rescheduling and moving from one work area to another, including work stoppage caused by airport operations will be considered as included in the contract prices paid for contract items of work involved and not additional compensation.

14) Runway and Taxiway Visual Aids

The phasing associated with the Taxiway E and Taxiway J Rehabilitation Project creates temporary closures of various taxiways during the course of construction. Temporary lighting and signs will be required throughout the project due to taxiway closures. No temporary NAVAIDs will be required. All airfield lights and signs shall be secured, to prevent movement due to weather or jet blast. However, all lights and signs shall be mounted on frangible base mounts, to prevent aircraft damage and to maintain an object free area.

The Taxiway E and Taxiway J Rehabilitation Project will include the removal of taxiway pavement markings, lighting, and signs, which will be replaced as part of the project and those required to support phasing of the construction. The markings affected include but are not limited to taxiway centerline, taxiway enhanced centerline and taxiway edge markings. The airfield lighting affected includes but is not limited to taxiway edge lights, centerline lights, and guidance signs. For those unfamiliar with runway and taxiway visual aids, refer to the "Airfields Signs, Markings and Lighting" section of **Appendix B**.

All pavement markings on the Taxiway E and Taxiway J Rehabilitation Project will conform to AC 150/5340-1 "Standards for Airport Markings". The airfield signs will conform to AC 150/5345-44 "Specifications for Runway and Taxiway Signs", AC 150/5340-18 "Standards for Airport Sign Systems" and with AC 150/5345-53 "Airport Lighting Certification Program." Airfield lighting shall

conform to AC 150/5340-30 “Design and Installation Details for Airport Visual Aids”, AC 150/5345-50 “Specification for Portable Runway and Taxiway Lights” and with AC 150/5345-53 “Airport Lighting Certification Program.”

15) Marking and Signs for Access Routes

No pavement marking or sign installation on airport access routes is anticipated as part of the Taxiway E and Taxiway J Rehabilitation Project. Should such work be added to the contract, all pavement markings and signs for construction personnel shall conform to AC 150/5340-18 and, to the extent practicable, with the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) and/or State highway specifications.

16) Hazard Marking and Lighting

Various methods of traffic control will be implemented on the Taxiway E and Taxiway J Rehabilitation Project. All construction vehicles shall be equipped with a flashing amber warning light and all construction equipment shall be equipped with either a flashing amber light or with an aviation warning flag. All construction equipment shall be equipped with back up alarms. Batch plants shall be equipped with a steady burn red warning light on their highest point.

The flashing red lights, on the low-level barricades, shall meet the luminance requirements of MoDOT. All barricades, temporary markers, and other objects placed and left in areas adjacent to any open runway, taxiway, taxilane, or apron shall be as low as possible to the ground and shall be no more than 18 inches in height. Sheet G08 in **Appendix A** contains details for maintenance of traffic. Sheets G04-G07 in **Appendix A** show maintenance of traffic required for Phases 1, 2 and 3. **Table 7** summarizes the methods to be used as well as where and when they will be implemented.

The Contractor shall designate a person to be on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades. The Contractor shall file the contact person's information with the KCAD's Operations Department. It is also the Contractor's responsibility to check all flasher barricades daily, preferably at dusk.

Table 7 Maintenance of Traffic Methods

Method	Use/Location	Phase		
		Phase 1	Phase 2	Phase 3
Orange Safety Fence	Used to define the limits of construction as well as TSA or TOFA limits in turf areas, to prevent encroachment of these areas.	X	X	X
Low Profile Flasher Barricade	Used to define the limits of construction as well as TSA or TOFA limits in paved areas, to prevent encroachment of these areas.	X	X	X

17) Work Zone Lighting for Nighttime Construction

Proper illumination and lighting equipment is required in accordance to AC 150/5370-10 during nighttime construction. Lighting towers should be positioned to avoid blinding effect for the ATCT,

using shielding if necessary. All lighting equipment must be removed prior to taxiways and runways opening.

18) Protection of RSA/TSA, OFA, OFZ and Approach/Departure Surfaces

The phasing limits associated with the Taxiway E and Taxiway J Rehabilitation Project allow the Contractor to work in areas that do not encroach on Runway Safety Area (RSA), Runway Object Free Area (ROFA), Taxiway Safety Area (TSA), Taxiway Object Free Area (TOFA), Obstacle Free Zone (OFZ) or Runway Approach/Departure surfaces of operational runways or taxiways. Although it is not anticipated to be needed, any adjustments of the RSA or TSA shall be coordinated by the Sponsor, with the ATCT and the appropriate FAA Regional Office and a local NOTAM shall be issued. Work areas near active runways will have flasher barricades installed end to end, which delineates the limits of the RSA. Work areas near active taxiways will have flasher barricades installed end to end, which delineates the limits of the TOFA of the specified taxiway. The contractor is required to remove all equipment from the project work area at the end of each working day. Below are the dimensions for the aforementioned safety and object free areas.

Table 8 Safety and Object Free Dimensions

Protected Area	Airplane Design Group	Distance from CL
Runway 1R-19L RSA	D-V	250’
Runway 1R-19L ROFA	D-V	400’
Taxiway E1 TOFA	D-V	142.5’
Taxiway E2 TOFA	D-V	142.5’
Taxiway E3 TOFA	D-V	142.5’
Taxiway E4 TOFA	D-V	142.5’
Taxiway E5 TOFA	D-V	142.5’
Taxiway E6 TOFA	D-V	142.5’
Taxiway E7 TOFA	D-V	142.5’
Taxiway E8 TOFA	D-V	142.5’
Taxiway C TOFA	D-V	142.5’
Taxiway D TOFA	D-V	142.5’
Taxiway J TOFA	D-V	142.5’
Taxiway K TOFA	D-V	142.5’

Open trenches or excavation are not permitted within the RSA of active runways or the TSA of active taxiways. Trenches within the RSA or TSA need to be backfilled or appropriately covered prior to the pavement being open to traffic. For further information regarding stockpiles refer to Section 5) Contractor Access. All grading shall conform to the requirements of the RSA and TSA standards. As previously mentioned, no construction, including excavation, is allowed in the TOFA, while the taxiway is open to traffic.

Reference AC 150/5370-2G Section 2.22.3.4 for restrictions and specific requirements in rare circumstances where an open trench is necessary inside the TSA or TOFA.

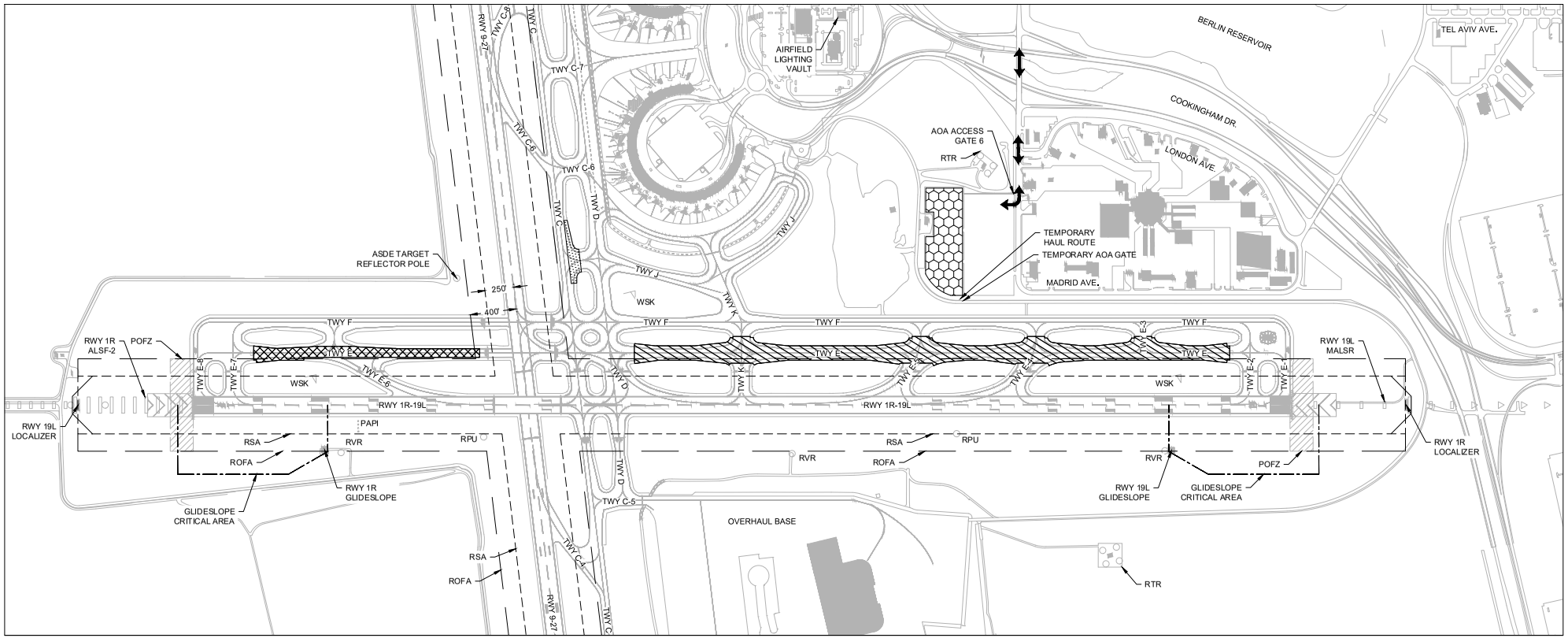
19) Other Limitations on Construction

Prior to the start of construction, the Contractor must provide HNTB with specific equipment and batch plant heights in order to complete FAA form 7460-1 and submit for FAA airspace review. A determination letter from the FAA acknowledging equipment heights within the project area is required before construction can commence.

No open flames, including flare pots are allowed within the AOA limits, at any time. The Contractor shall not use open flame welding or torches, unless adequate fire safety precautions have been made and the airport operations have approved their use. No blasting is allowed on airport property and the usage of electrical blasting caps within 1,000 feet of the airport property is prohibited.

APPENDIX A

PROJECT SAFETY AND PHASING PLAN SHEETS



GENERAL NOTES:

1. PHASE 1 MAY BEGIN FOLLOWING THE NOTICE TO PROCEED (NTP). PHASE 1 IS ANTICIPATED TO START IN THE LATE SPRING OF 2023 WITH A TOTAL OF 66 CALENDAR DAYS. PHASE 1 WORK SHALL ONLY INCLUDE WORK AREA A.
2. PHASE 2 MAY BEGIN FOLLOWING THE COMPLETION OF PHASE 1 WITH A TOTAL OF 44 CALENDAR DAYS. PHASE 2 SHALL ONLY INCLUDE WORK AREAS A AND B.
3. PHASE 3 MAY BEGIN FOLLOWING THE COMPLETION OF PHASE 2 WITH A TOTAL OF 45 CALENDAR DAYS. PHASE 3 SHALL ONLY INCLUDE WORK AREAS B AND C.
4. THE CONTRACTOR SHALL NOT MAKE ANY CHANGES AND/OR COMBINATIONS TO THE PROJECT PHASING LIMITS OR ORDER OF WORK WITHOUT PRIOR APPROVAL BY THE ENGINEER, AIRPORT OPERATIONS, AND THE KCAD. THE KCAD RESERVES THE RIGHT TO MAKE CHANGES TO THE SCHEDULE AS IT DEEMS NECESSARY.
5. ALL PROJECT WORK SHALL BE COMPLETED WITHIN THE SPECIFIED CALENDAR DAYS PER EACH PHASE. REFERENCE THE PROJECT MANUAL FOR INFORMATION REGARDING LIQUIDATED DAMAGES.

	CONSTRUCTION CALENDAR DAYS	CALENDAR YEAR 2023					
		JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER
		PHASE 1		PHASE 2		PHASE 3	
WORK AREA A	110						
WORK AREA B	89						
WORK AREA C	45						

LEGEND:

- WORK AREA A LIMITS
- WORK AREA B LIMITS
- WORK AREA C LIMITS
- CONTRACTOR STAGING & BATCH PLANT SITE
- CONTRACTOR ACCESS ROUTE

N

400 0 400 800
Scale Feet

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT
KCI

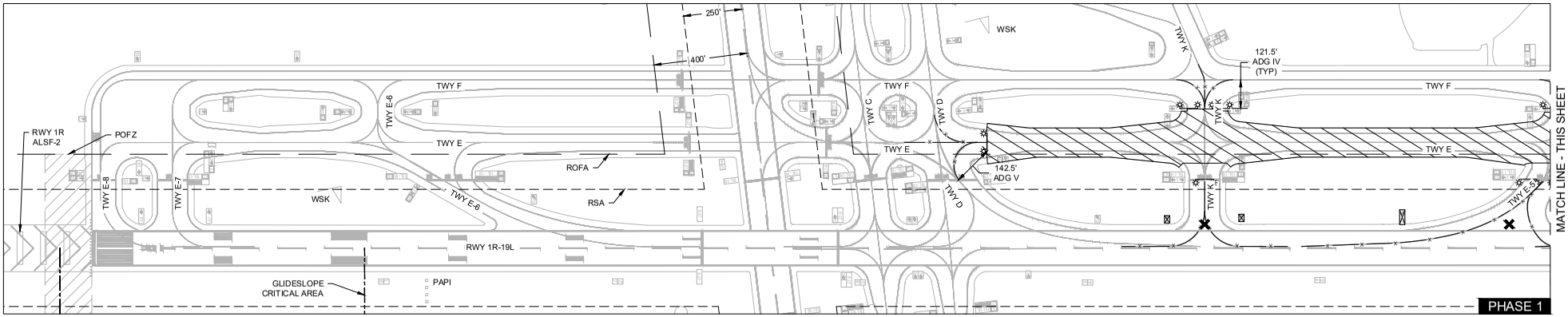
HNTB
715 Kirk Drive
Kansas City, MO 64105
License No. 001270

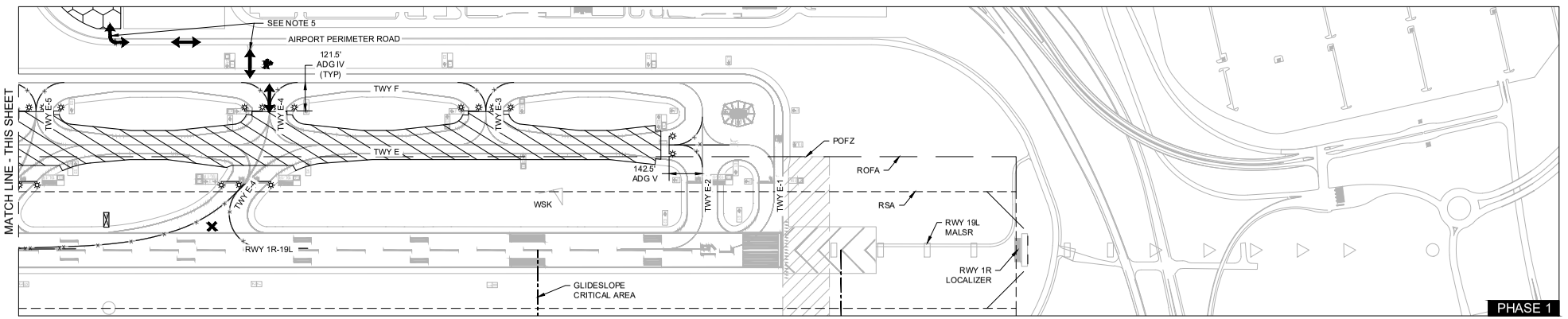
TAXIWAY E AND TAXIWAY J REHABILITATION

OVERALL PHASING PLAN

Design: MMW	CAD File: 62230566G04.dwg	Aviation Project No.	62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	G04 5 of 104

CAD File: 62230566G04.dwg





GENERAL NOTES:

1. PRIOR TO THE START OF WORK, THE CONTRACTOR SHALL INSTALL THE REQUIRED TRAFFIC CONTROL AS SHOWN. COST SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC. TRAFFIC CONTROL WILL REQUIRE THE TEMPORARY CLOSURE OF RUNWAY 1R-19L, TAXIWAY D, AND TAXIWAY F. CLOSURE OF RUNWAY 1R-19L, TAXIWAY D, AND TAXIWAY F SHALL BE COORDINATED WITH AIRPORT OPERATIONS AT LEAST 72 HOURS IN ADVANCE OF THE START OF WORK.

2. MARKINGS SHALL BE BLACKED OUT THAT LEAD INTO AREAS CLOSED FOR CONSTRUCTION AND COSTS SHALL BE PER SPECIFICATION P-620-2, TEMPORARY PAVEMENT MARKINGS. RUNWAY HOLD BARS, SURFACE PAINTED HOLD POSITION SIGNS AND THERMOPLASTIC PAVEMENT MARKINGS SHALL REMAIN. THE EXACT EXTENT AND LOCATIONS OF MARKINGS TO BE BLACKED OUT SHALL BE COORDINATED WITH THE RPR AND AIRPORT OPERATIONS PRIOR TO START OF THE PHASE AND MAY NOT COMMENCE UNTIL THE PHASE AREA HAS BEEN CLOSED TO AIRCRAFT TRAFFIC. THE CONTRACTOR IS RESPONSIBLE FOR REPAINTING OF ANY PERMANENT MARKINGS AND INSTALLATION OF NEW TEMPORARY MARKINGS AS NECESSARY PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS. REPAINTING BLACKOUT PERMANENT MARKINGS LEADING INTO CLOSURE AREAS AND NEW PAVEMENT MARKINGS ARE REQUIRED AS SHOWN HERE AND ON THE MARKING PLANS WITH COST BE PER ITEM P-620-1, RUNWAY AND TAXIWAY MARKING AND P-620-2, TEMPORARY PAVEMENT MARKINGS.

3. LIGHTS AND SIGNAGE SHALL BE COVERED/ DISCONNECTED/ JUMPERED/ REMOVED WITHIN AREAS CLOSED FOR CONSTRUCTION EXCEPT AS FOLLOWS: ELEVATED AND IN-PAVEMENT RUNWAY GUARD LIGHTS AND RUNWAY HOLDING POSITION SIGNS SHALL REMAIN LIT. TAXIWAY CENTERLINE LIGHTS LEADING INTO AREAS CLOSED FOR CONSTRUCTION SHALL BE DISCONNECTED OR COVERED. TAXIWAY DIRECTION SIGNS ON ACTIVE PAVEMENTS POINTING TOWARD AREAS CLOSED FOR CONSTRUCTION SHALL REMAIN LIT. THE EXACT EXTENT AND LOCATIONS OF AFFECTED LIGHTS AND SIGNAGE SHALL BE COORDINATED WITH THE RPR AND AIRPORT OPERATIONS PRIOR TO START OF THE PHASE AND MAY NOT COMMENCE UNTIL THE PHASE AREA HAS BEEN CLOSED TO AIRCRAFT TRAFFIC. ALL WORK MUST BE COMPLETED PRIOR TO DUSK OR, IF AT NIGHT, IMMEDIATELY AFTER THE PHASE AREA HAS BEEN CLOSED TO AIRCRAFT TRAFFIC. THE CONTRACTOR IS RESPONSIBLE FOR RE-INSTALLATION OF ANY LIGHTS AND SIGNAGE THAT ARE COVERED OR REMOVED AS NECESSARY PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS. COST SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC.

4. CONTRACTOR SHALL INSTALL SILT FENCE TO DELINEATE THE BOUNDARY OF THE RUNWAY SAFETY AREA (RSA) FOR RUNWAY 1R-19L AND TAXIWAY OBJECT FREE AREA (TOFA) OF TAXIWAY F. SILT FENCE SHALL REMAIN 2FT (MINIMUM) CLEAR OF THE TOFA. NO UNAUTHORIZED OBJECTS OR PERSONNEL ARE ALLOWED INSIDE AN ACTIVE TOFA. REFERENCE EROSION CONTROL DETAILS FOR SILT FENCE INSTALLATION. INSTALLATION OF THIS SILT FENCE SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC.

5. THE CONTRACTOR SHALL UTILIZE THE AIRPORT PERIMETER ROAD TO ACCESS THE PHASE 1 WORK AREA VIA A TEMPORARY AOA GATE. THE CONTRACTOR SHALL CONSTRUCT A NEW HAUL ROAD FROM THE CONTRACTOR STAGING AREA TO THE EXISTING AIRPORT PERIMETER ROAD AND IMPROVE THE EXISTING HAUL ROAD TO TAXIWAY F FROM THE AIRPORT PERIMETER ROAD AS NECESSARY FOR HAULING OPERATIONS. THE CONTRACTOR SHALL NOT USE THE OVERHAUL BASE APRON OR ADJACENT TAXIWAYS FOR HAULING OPERATIONS. HAUL ROUTES LIMITS TO BE CONSTRUCTED AND USED SHALL BE SHOWN ON CONTRACTOR SUBMITTED SITE PLAN. ANY IMPROVEMENTS REQUIRED FOR HAULING OPERATIONS ON THE AIRPORT PERIMETER ROAD OR THE EXISTING CONNECTOR ROADWAY SHALL BE INCIDENTAL TO ITEM C-105-1, MOBILIZATION. ALL TEMPORARY HAUL ROADS AND THE CONNECTOR ROADWAY FROM THE AIRPORT PERIMETER ROAD TO TAXIWAY F SHALL BE REMOVED ENTIRELY, REGRADED, AND SEEDED FOLLOWING COMPLETION OF THE PROJECT.

6. PAVEMENT MARKING REMOVAL AND REMARKING INDICATED ON THE CD AND CM SHEETS OUTSIDE OF THE BARRICADE LIMITS NOT REQUIRED FOR MAINTENANCE OF TRAFFIC SHALL NOT BE REMOVED UNTIL TEMPORARY MARKINGS ARE TO BE INSTALLED AT THE END OF THE PHASE. THE CONTRACTOR SHALL COORDINATE WITH AIRPORT OPERATIONS FOR THE CLOSURE OF TAXIWAY F TO COMPLETE REQUIRED PAVEMENT MARKING WORK.

7. END OF PHASE INSPECTIONS WILL BE CONDUCTED BY THE RPR, CONTRACTOR, AND AIRPORT OPERATIONS PRIOR TO OPENING AIRFIELD PAVEMENT TO AIR TRAFFIC. IN PROJECT AREAS THAT REQUIRE THE TEMPORARY CLOSURE OF AIRFIELD PAVEMENT, AIRPORT OPERATIONS WILL HAVE THE FINAL WORD ON THE ACCEPTANCE OF CLEANED CONSTRUCTION AREAS PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS.

PHASE 1	RWY 1R		RWY 19L		TWY F
AVAILABILITY	ARRIVAL	DEPARTURE	ARRIVAL	DEPARTURE	OPEN
CONSTRAINTS	EXIT AT TWY C, D, E-1 OR E-2	N/A	EXIT AT TWY C, D, E-6 OR E-7	N/A	ADG IV (NORTH OF TWY D)
NAVAIDS	NO IMPACT		NO IMPACT		N/A

PHASE	WORK ACTIVITIES	PAVEMENT CLOSURES	MAX CLOSURE DURATION (DAYS)
PHASE 1	• SURFACE PCCP RECONSTRUCTION: TWY E AND SHOULDERS • AIRFIELD LIGHTING INSTALLATION • TEMPORARY/ PERMANENT PAVEMENT MARKING	TWY E (BETWEEN TWY D AND E-2) TWY E-3, E-4, E-5 AND K (BETWEEN RWY 1R-19L AND TWY F)	66

LEGEND:

- WORK AREA A LIMITS
- CONTRACTOR ACCESS ROUTE
- LOW PROFILE FLASHER BARRICADE (1 / G08)
- TAXIWAY CLOSURE MARKER (2 / G08)
- CENTERLINE LIGHTS/MARKINGS TO BE TURNED OFF OR BLACKED OUT
- SIGNAGE TO BE COVERED
- FLAGGER

200 0 200 400
Scale Feet

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TAXIWAY E AND TAXIWAY J REHABILITATION

PHASING PLAN 1

Design: MMW	CAD File: 62230566G04.dwg	Aviation Project No. 62230566	
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. G05	6 of 104

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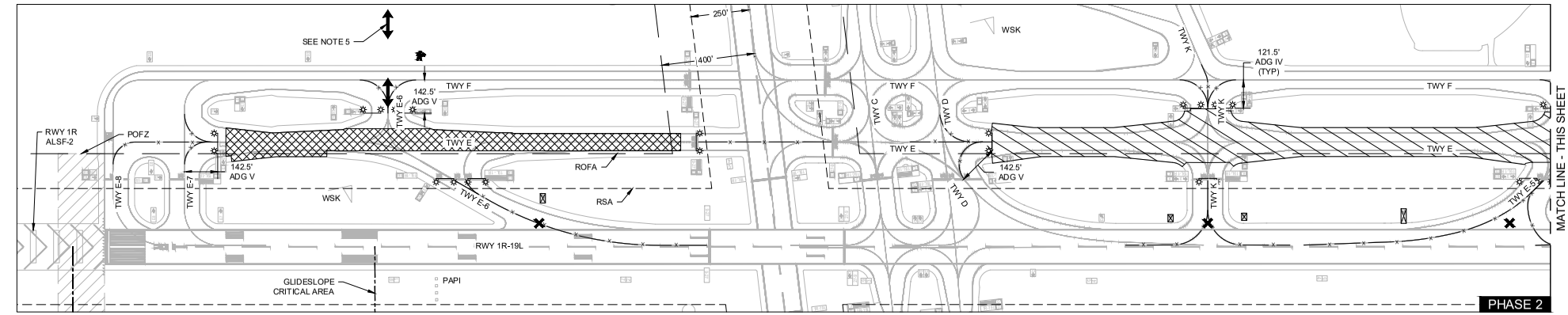

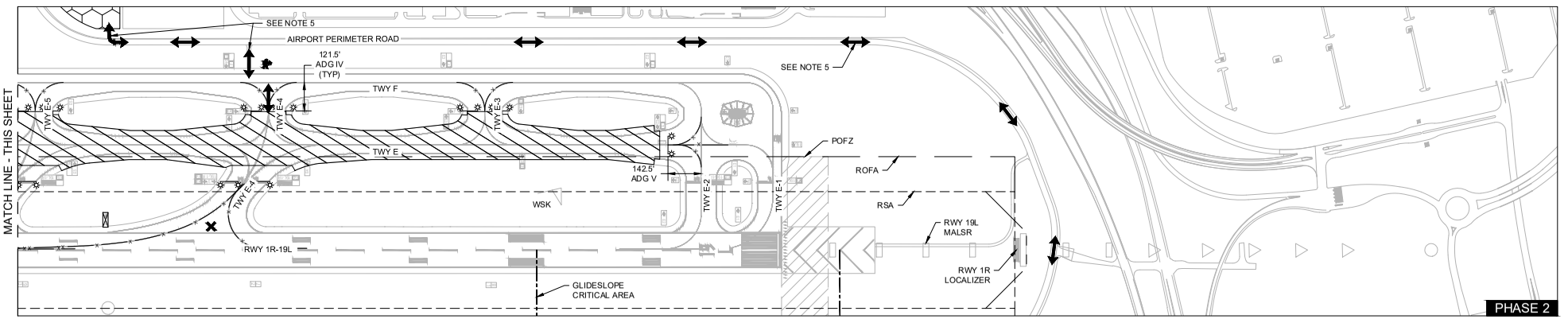

GENERAL NOTES:

1. PRIOR TO THE START OF WORK, THE CONTRACTOR SHALL INSTALL THE REQUIRED TRAFFIC CONTROL AS SHOWN. COST SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC. TRAFFIC CONTROL WILL REQUIRE THE TEMPORARY CLOSURE OF RUNWAY 1R-19L, RUNWAY 9-27, AND TAXIWAY F. CLOSURE OF RUNWAY 1R-19L, RUNWAY 9-27, AND TAXIWAY F SHALL BE COORDINATED WITH AIRPORT OPERATIONS AT LEAST 72 HOURS IN ADVANCE OF THE START OF WORK.

2. MARKINGS SHALL BE BLACKED OUT THAT LEAD INTO AREAS CLOSED FOR CONSTRUCTION AND COSTS SHALL BE PER SPECIFICATION P-620-2, TEMPORARY PAVEMENT MARKINGS. RUNWAY HOLD BARS, SURFACE PAINTED HOLD POSITION SIGNS AND THERMOPLASTIC PAVEMENT MARKINGS SHALL REMAIN. THE EXACT EXTENT AND LOCATIONS OF MARKINGS TO BE BLACKED OUT SHALL BE COORDINATED WITH THE RPR AND AIRPORT OPERATIONS PRIOR TO START OF THE PHASE AND MAY NOT COMMENCE UNTIL THE PHASE AREA HAS BEEN CLOSED TO AIRCRAFT TRAFFIC. THE CONTRACTOR IS RESPONSIBLE FOR REPAINTING OF ANY PERMANENT MARKINGS AND INSTALLATION OF NEW TEMPORARY MARKINGS AS NECESSARY PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS. REPAINTING BLACKOUT PERMANENT MARKINGS LEADING INTO CLOSURE AREAS AND NEW PAVEMENT MARKINGS ARE REQUIRED AS SHOWN HERE AND ON THE MARKING PLANS WITH COST BE PER SPECIFICATION P-620-1, RUNWAY AND TAXIWAY MARKING AND P-620-2, TEMPORARY PAVEMENT MARKINGS.

3. LIGHTS AND SIGNAGE SHALL BE COVERED/ DISCONNECTED/ JUMPERED/ REMOVED WITHIN AREAS CLOSED FOR CONSTRUCTION EXCEPT AS FOLLOWS: ELEVATED AND IN-PAVEMENT RUNWAY GUARD LIGHTS AND RUNWAY HOLDING POSITION SIGNS SHALL REMAIN LIT. TAXIWAY CENTERLINE LIGHTS LEADING INTO AREAS CLOSED FOR CONSTRUCTION SHALL BE DISCONNECTED OR COVERED. TAXIWAY DIRECTION SIGNS ON ACTIVE PAVEMENTS POINTING TOWARD AREAS CLOSED FOR CONSTRUCTION SHALL REMAIN LIT. THE EXACT EXTENT AND LOCATIONS OF AFFECTED LIGHTS AND SIGNAGE SHALL BE COORDINATED WITH THE RPR AND AIRPORT OPERATIONS PRIOR TO START OF THE PHASE AND MAY NOT COMMENCE UNTIL THE PHASE AREA HAS BEEN CLOSED TO AIRCRAFT TRAFFIC. ALL WORK MUST BE COMPLETED PRIOR TO DUSK OR, IF AT NIGHT, IMMEDIATELY AFTER THE PHASE AREA HAS BEEN CLOSED TO AIRCRAFT TRAFFIC. THE CONTRACTOR IS RESPONSIBLE FOR RE-INSTALLATION OF ANY LIGHTS AND SIGNAGE THAT ARE COVERED OR REMOVED AS NECESSARY PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS. COST SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC.

4. CONTRACTOR SHALL INSTALL SILT FENCE TO DELINEATE THE BOUNDARY OF THE RUNWAY SAFETY AREA (RSA) FOR RUNWAY 1R-19L AND TAXIWAY OBJECT FREE AREA (TOFA) OF TAXIWAY F. SILT FENCE SHALL REMAIN 2FT (MINIMUM) CLEAR OF THE TOFA. NO UNAUTHORIZED OBJECTS OR PERSONNEL ARE ALLOWED INSIDE AN ACTIVE TOFA. REFERENCE EROSION CONTROL DETAILS FOR SILT FENCE INSTALLATION. INSTALLATION OF THIS SILT FENCE SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC.

5. THE CONTRACTOR SHALL UTILIZE THE AIRPORT PERIMETER ROAD TO ACCESS THE PHASE 2 WORK AREA VIA A TEMPORARY AOA GATE. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN A NEW HAUL ROAD FROM THE CONTRACTOR STAGING AREA AND TAXIWAY F TO THE EXISTING AIRPORT PERIMETER ROAD AND IMPROVE THE EXISTING HAUL ROAD AS NECESSARY FOR HAULING OPERATIONS. THE CONTRACTOR SHALL NOT USE THE OVERHAUL BASE APRON OR ADJACENT TAXIWAYS FOR HAULING OPERATIONS. HAUL ROUTES LIMITS TO BE CONSTRUCTED AND USED SHALL BE SHOWN ON CONTRACTOR SUBMITTED SITE PLAN. ANY IMPROVEMENTS REQUIRED FOR HAULING OPERATIONS ON THE AIRPORT PERIMETER ROAD OR THE EXISTING CONNECTOR ROADWAY SHALL BE INCIDENTAL TO ITEM C-105-1, MOBILIZATION. THIS SHALL INCLUDE STORM PIPES UNDER THE ROADWAY TO MAINTAIN DRAINAGE TO THE SATISFACTION OF AIRPORT OPERATIONS. ALL TEMPORARY HAUL ROADS AND THE CONNECTOR ROADWAY FROM THE AIRPORT PERIMETER ROAD TO TAXIWAY F SHALL BE REMOVED ENTIRELY, REGRADED, AND SEEDED FOLLOWING COMPLETION OF THE PROJECT.

6. PAVEMENT MARKING REMOVAL AND REMARKING INDICATED ON THE CD AND CM SHEETS OUTSIDE OF THE BARRICADE LIMITS NOT REQUIRED FOR MAINTENANCE OF TRAFFIC SHALL NOT BE REMOVED UNTIL TEMPORARY MARKINGS ARE TO BE INSTALLED AT THE END OF THE PHASE. THE CONTRACTOR SHALL COORDINATE WITH AIRPORT OPERATIONS FOR THE CLOSURE OF TAXIWAY F TO COMPLETE REQUIRED PAVEMENT MARKING WORK.

7. END OF PHASE INSPECTIONS WILL BE CONDUCTED BY THE RPR, CONTRACTOR, AND AIRPORT OPERATIONS PRIOR TO OPENING AIRFIELD PAVEMENT TO AIR TRAFFIC. IN PROJECT AREAS THAT REQUIRE THE TEMPORARY CLOSURE OF AIRFIELD PAVEMENT, AIRPORT OPERATIONS WILL HAVE THE FINAL WORD ON THE ACCEPTANCE OF CLEANED CONSTRUCTION AREAS PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS.

PHASE 2	RWY 1R		RWY 19L		TWY F
AVAILABILITY	ARRIVAL	DEPARTURE	ARRIVAL	DEPARTURE	OPEN
CONSTRAINTS	EXIT AT TWY C, D, E-1 OR E-2	N/A	EXIT AT TWY C, D, E-7 OR E-8	N/A	ADG IV (NORTH OF TWY D)
NAVAIDS	NO IMPACT		NO IMPACT		N/A

PHASE	WORK ACTIVITIES	PAVEMENT CLOSURES	MAX CLOSURE DURATION (DAYS)
PHASE 2	• SURFACE PCCP RECONSTRUCTION: TWY E AND SHOULDERS • AIRFIELD LIGHTING INSTALLATION • TEMPORARY/ PERMANENT PAVEMENT MARKING	TWY E (BETWEEN TWY D AND E-2 AND BETWEEN RWY 9-27 RSA AND TWY E-7) TWY E-3, E-4, E-5, E-6 AND K (BETWEEN RWY 1R-19L AND TWY F)	44

LEGEND:

- WORK AREA A LIMITS
- WORK AREA B LIMITS
- CONTRACTOR ACCESS ROUTE
- LOW PROFILE FLASHER BARRICADE (1 / G08)
- TAXIWAY CLOSURE MARKER (2 / G08)
- CENTERLINE LIGHTS/MARKINGS TO BE TURNED OFF OR BLACKED OUT
- SIGNAGE TO BE COVERED
- FLAGGER

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Scale Feet

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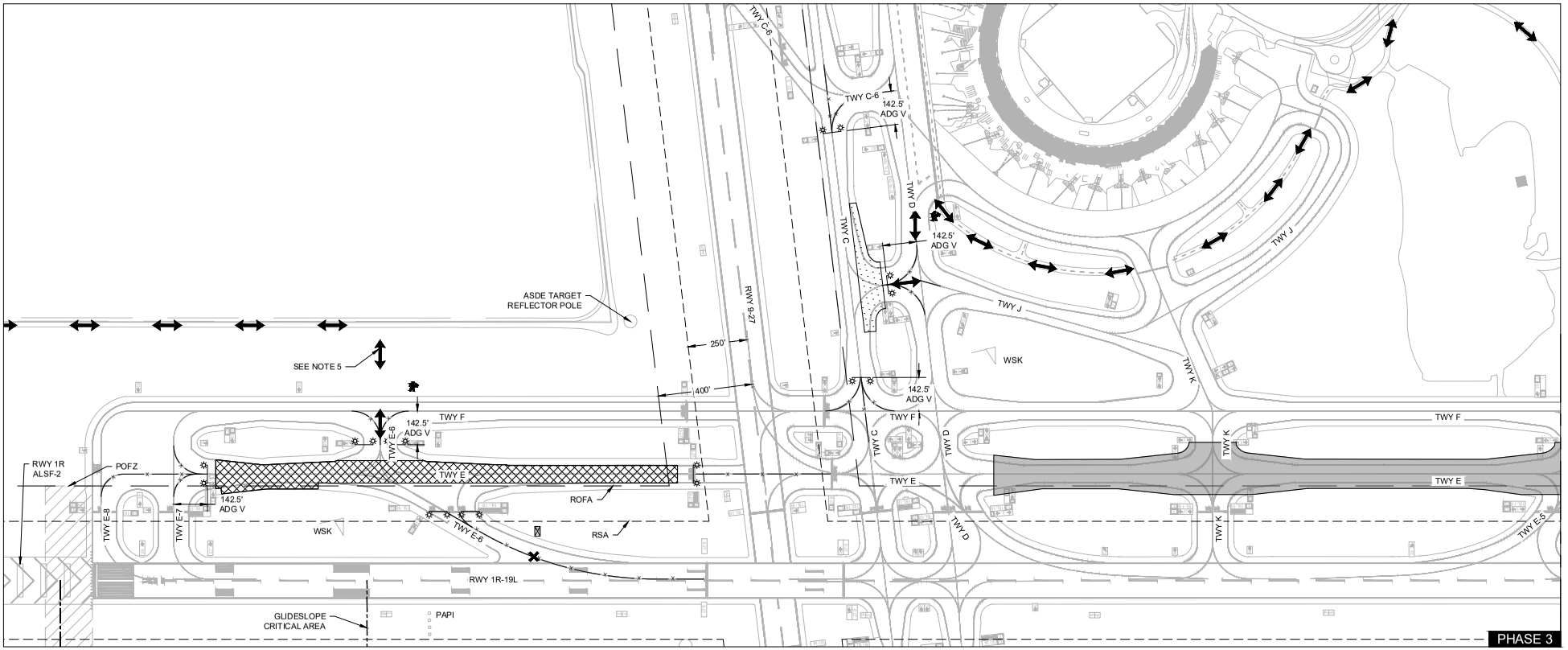
TAXIWAY E AND TAXIWAY J
REHABILITATION

PHASING PLAN 2

Design: MMW	CAD File: 62230566G04.dwg	Aviation Project No. 62230566	
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. G06	7 of 104

CAD File: 62230566G04.dwg



GENERAL NOTES:

1. PRIOR TO THE START OF WORK, THE CONTRACTOR SHALL INSTALL THE REQUIRED TRAFFIC CONTROL AS SHOWN. COST SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC. TRAFFIC CONTROL WILL REQUIRE THE TEMPORARY CLOSURE OF TAXIWAYS ADJACENT TO THE WORK AREA. CLOSURE OF TAXIWAYS ADJACENT TO THE WORK AREA SHALL BE COORDINATED WITH AIRPORT OPERATIONS AT LEAST 72 HOURS IN ADVANCE OF THE START OF WORK.

2. MARKINGS SHALL BE BLACKED OUT THAT LEAD INTO AREAS CLOSED FOR CONSTRUCTION AND COSTS SHALL BE PER SPECIFICATION P-620-2, TEMPORARY PAVEMENT MARKINGS. RUNWAY HOLD BARS, SURFACE PAINTED HOLD POSITION SIGNS AND THERMOPLASTIC PAVEMENT MARKINGS SHALL REMAIN. THE EXACT EXTENT AND LOCATIONS OF MARKINGS TO BE BLACKED OUT SHALL BE COORDINATED WITH THE RPR AND AIRPORT OPERATIONS PRIOR TO START OF THE PHASE AND MAY NOT COMMENCE UNTIL THE PHASE AREA HAS BEEN CLOSED TO AIRCRAFT TRAFFIC. THE CONTRACTOR IS RESPONSIBLE FOR REPAINTING OF ANY PERMANENT MARKINGS AND INSTALLATION OF NEW TEMPORARY MARKINGS AS NECESSARY PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS. REPAINTING BLACKOUT PERMANENT MARKINGS LEADING INTO CLOSURE AREAS AND NEW PAVEMENT MARKINGS ARE REQUIRED AS SHOWN HERE AND ON THE MARKING PLANS WITH COST BE PER SPECIFICATION P-620-1, RUNWAY AND TAXIWAY MARKING AND P-620-2, TEMPORARY PAVEMENT MARKINGS.

3. LIGHTS AND SIGNAGE SHALL BE COVERED/ DISCONNECTED/ JUMPERED/ REMOVED WITHIN AREAS CLOSED FOR CONSTRUCTION EXCEPT AS FOLLOWS: ELEVATED AND IN-PAVEMENT RUNWAY GUARD LIGHTS AND RUNWAY HOLDING POSITION SIGNS SHALL REMAIN LIT. TAXIWAY CENTERLINE LIGHTS LEADING INTO AREAS CLOSED FOR CONSTRUCTION SHALL BE DISCONNECTED OR COVERED. TAXIWAY DIRECTION SIGNS ON ACTIVE PAVEMENTS POINTING TOWARD AREAS CLOSED FOR CONSTRUCTION SHALL REMAIN LIT. THE EXACT EXTENT AND LOCATIONS OF AFFECTED LIGHTS AND SIGNAGE SHALL BE COORDINATED WITH THE RPR AND AIRPORT OPERATIONS PRIOR TO START OF THE PHASE AND MAY NOT COMMENCE UNTIL THE PHASE AREA HAS BEEN CLOSED TO AIRCRAFT TRAFFIC. ALL WORK MUST BE COMPLETED PRIOR TO DUSK OR, IF AT NIGHT, IMMEDIATELY AFTER THE PHASE AREA HAS BEEN CLOSED TO AIRCRAFT TRAFFIC. THE CONTRACTOR IS RESPONSIBLE FOR RE-INSTALLATION OF ANY LIGHTS AND SIGNAGE THAT ARE COVERED OR REMOVED AS NECESSARY PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS. COST SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC.

4. CONTRACTOR SHALL INSTALL SILT FENCE TO DELINEATE THE BOUNDARY OF THE RUNWAY SAFETY AREA (RSA) FOR RUNWAY 1R-19L. SILT FENCE SHALL REMAIN 2FT (MINIMUM) CLEAR OF THE TOFA. NO UNAUTHORIZED OBJECTS OR PERSONNEL ARE ALLOWED INSIDE AN ACTIVE TOFA. REFERENCE EROSION CONTROL DETAILS FOR SILT FENCE INSTALLATION. INSTALLATION OF THIS SILT FENCE SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC.

5. THE CONTRACTOR SHALL UTILIZE THE AIRPORT PERIMETER ROAD TO ACCESS THE PHASE 3 WORK AREA VIA A TEMPORARY AOA GATE. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN A NEW HAUL ROAD FROM THE CONTRACTOR STAGING AREA AND TAXIWAY F TO THE EXISTING AIRPORT PERIMETER ROAD AND IMPROVE THE EXISTING HAUL ROAD AS NECESSARY FOR HAULING OPERATIONS. THE CONTRACTOR SHALL NOT USE THE OVERHAUL BASE APRON OR ADJACENT TAXIWAYS FOR HAULING OPERATIONS. HAUL ROUTES LIMITS TO BE CONSTRUCTED AND USED SHALL BE SHOWN ON CONTRACTOR SUBMITTED SITE PLAN. ANY IMPROVEMENTS REQUIRED FOR HAULING OPERATIONS ON THE AIRPORT PERIMETER ROAD OR THE EXISTING CONNECTOR ROADWAY SHALL BE INCIDENTAL TO ITEM C-105-1, MOBILIZATION. ALL TEMPORARY HAUL ROADS SHALL BE REMOVED ENTIRELY, REGRADED, AND SEEDED FOLLOWING COMPLETION OF THE PROJECT.

6. PAVEMENT MARKING REMOVAL AND REMARKING INDICATED ON THE CD AND CM SHEETS OUTSIDE OF THE BARRICADE LIMITS NOT REQUIRED FOR MAINTENANCE OF TRAFFIC SHALL NOT BE REMOVED UNTIL TEMPORARY MARKINGS ARE TO BE INSTALLED AT THE END OF THE PHASE. THE CONTRACTOR SHALL COORDINATE WITH AIRPORT OPERATIONS FOR THE CLOSURE OF TAXIWAY F AND TAXIWAY D TO COMPLETE REQUIRED PAVEMENT MARKING WORK.

7. END OF PHASE INSPECTIONS WILL BE CONDUCTED BY THE RPR, CONTRACTOR, AND AIRPORT OPERATIONS PRIOR TO OPENING AIRFIELD PAVEMENT TO AIR TRAFFIC. IN PROJECT AREAS THAT REQUIRE THE TEMPORARY CLOSURE OF AIRFIELD PAVEMENT, AIRPORT OPERATIONS WILL HAVE THE FINAL WORD ON THE ACCEPTANCE OF CLEANED CONSTRUCTION AREAS PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS.

PHASE 3	RWY 1R		RWY 19L		TWY F
AVAILABILITY	ARRIVAL	DEPARTURE	ARRIVAL	DEPARTURE	OPEN
CONSTRAINTS	N/A	N/A	EXIT AT TWY C, D, E-7 OR E-8	N/A	N/A
NAVAIDS	NO IMPACT		NO IMPACT		N/A

PHASE	WORK ACTIVITIES	PAVEMENT CLOSURES	MAX CLOSURE DURATION (DAYS)
PHASE 3	• SURFACE PCCP RECONSTRUCTION: TWY E, TWY J AND TWY E SHOULDERS • 2" ASPHALT MILL AND OVERLAY: TWY J SHOULDERS • AIRFIELD LIGHTING INSTALLATION • TEMPORARY/ PERMANENT PAVEMENT MARKING	TWY C (BETWEEN TWY C-6 AND F) TWY E (BETWEEN RWY 9-27 RSA AND TWY E-7) TWY E-6 (BETWEEN RWY 1R-19L AND TWY F) TWY J (BETWEEN TWY C AND D)	45

LEGEND:

- WORK AREA B LIMITS
- WORK AREA C LIMITS
- PREVIOUSLY COMPLETED
- CONTRACTOR ACCESS ROUTE
- LOW PROFILE FLASHER BARRICADE (1 / G08)
- TAXIWAY CLOSURE MARKER (2 / G08)
- CENTERLINE LIGHTS/MARKINGS TO BE TURNED OFF OR BLACKED OUT
- SIGNAGE TO BE COVERED
- FLAGGER

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Scale Feet

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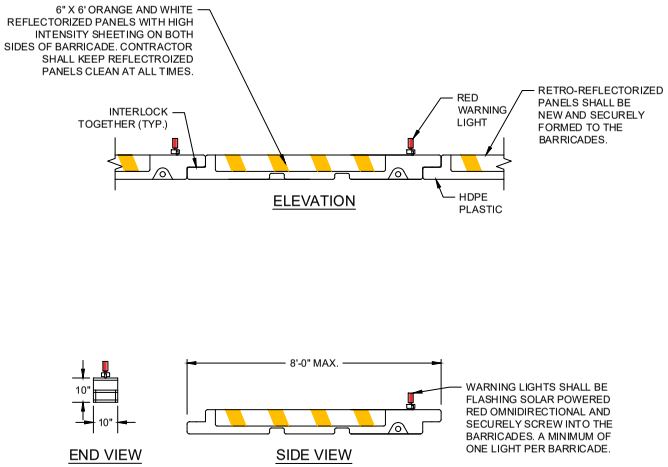
TAXIWAY E AND TAXIWAY J REHABILITATION

PHASING PLAN 3

Design: MMW	CAD File: 62230566G04.dwg	Aviation Project No. 62230566	
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. G07	8 of 104

CAD File: 62230566G04.dwg

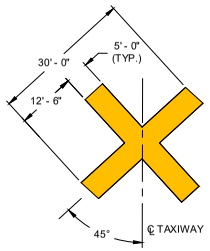


1 LOW PROFILE FLASHER BARRICADE

NOT TO SCALE

LOW PROFILE FLASHER BARRICADE NOTES:

1. PLACEMENT AND MAINTENANCE OF BARRICADES SHALL BE CONSIDERED SUBSIDIARY TO ITEM C-106-1, MAINTENANCE OF TRAFFIC.
2. 360 DEG. FLASHERS TO BE BATTERY OPERATED AND/OR SOLAR POWERED.
3. FACING OF LOW-PROFILE BARRICADE TO BE COVERED WITH REFLECTIVE MATERIAL.
4. LOW-PROFILE BARRICADES TO BE PLACED END TO END, NO SPACING BETWEEN BARRICADES ALONG OPERATIONAL PAVEMENT, ADJACENT TO CONSTRUCTION.
5. 360 DEG. FLASHERS SHALL BE SECURED TO THE BARRICADES, PER MANUFACTURER'S INSTRUCTIONS.
6. LOW-PROFILE BARRICADES SHALL BE OF LOW MASS, EASILY COLLAPSIBLE UPON CONTACT WITH AN AIRCRAFT OR ANY OF IT'S COMPONENTS, AND WEIGHTED.
7. THE CONTRACTOR SHALL MAINTAIN ALL BARRICADES AND ENSURE THEY ARE IN WORKING ORDER TWENTY-FOUR (24) HOURS A DAY, FOR THE DURATION OF THE PROJECT. THE BARRICADE LIGHTING SHALL BE CHECKED NIGHTLY BY THE CONTRACTOR.
8. THE LIGHTS SHALL BE OPERATIONAL AT EACH BARRICADE LOCATION AT ALL TIMES. ANY LIGHTS FOUND NON-OPERATIONAL SHALL BE REPAIRED OR REPLACED.
9. ALL BARRIERS AND BARRIER PLACEMENT SHALL BE IN COMPLIANCE WITH AC 150/5370-2G, OR MOST CURRENT EDITION.
10. ALL CONTRACTOR-PROVIDED BARRIERS AND LIGHTS SHALL CONFORM TO THE REQUIREMENTS OF SPECIFICATIONS. ALL BARRIERS SHALL BE FILLED WITH WATER AFTER PLACEMENT. FILL WITH POTASSIUM ACETATE SOLUTION DURING PERIODS OF SUB-FREEZING TEMPERATURES TO PREVENT FREEZING.
11. LIGHTED BARRICADES MAY BE USED TO MARK EXCAVATIONS OR TRENCHES.
12. BARRICADES SHALL BE KEPT CLEAN AT ALL TIMES.



2 TAXIWAY CLOSURE MARKER

NOT TO SCALE

TAXIWAY CLOSURE MARKER NOTES:

1. TAXIWAY CLOSURE MARKERS MAY BE CONSTRUCTED FROM: 4'X8'X1/2" EXTERIOR GRADE PLYWOOD PAINTED YELLOW WITH 6" BLACK BORDER, OR YELLOW POLYETHYLENE WEAVE FABRIC SECURED TO TREATED 2"X4" FRAME AND WEIGHED WITH SANDBAGS. SANDBAGS SHALL BE PAINTED YELLOW.
2. PLACEMENT AND MAINTENANCE OF TAXIWAY CLOSURE MARKERS SHALL BE CONSIDERED SUBSIDIARY TO ITEM C-106-1, MAINTENANCE OF TRAFFIC.
3. TAXIWAY CLOSURE MARKERS MUST BE SECURED TO PREVENT DISPLACEMENT BY JET BLAST OR WINDS.

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TAXIWAY E AND TAXIWAY J REHABILITATION

SAFETY AND PHASING DETAILS

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Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. G08	9 of 104

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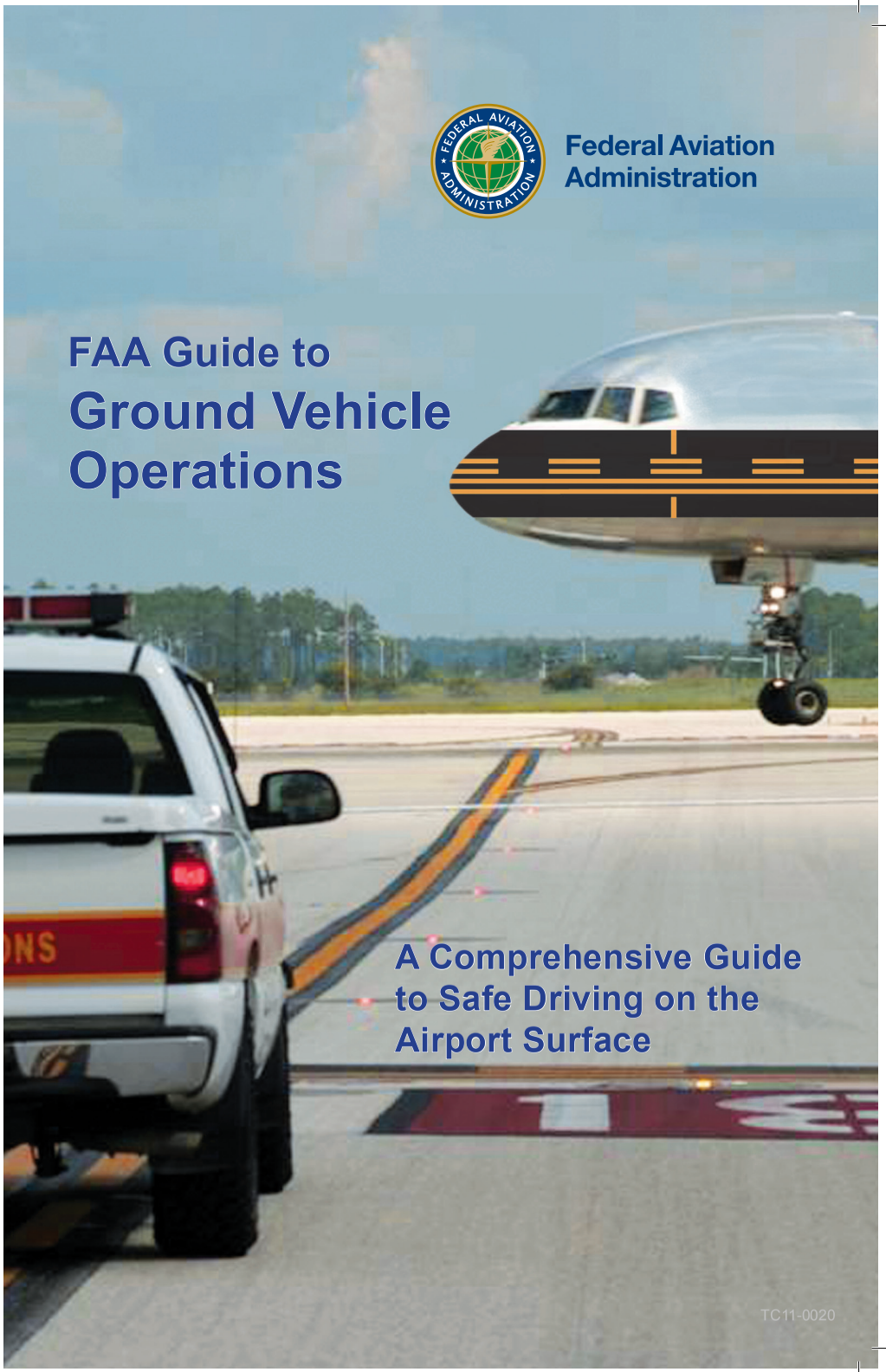
APPENDIX B

FAA GUIDE TO GROUND VEHICLE OPERATIONS


Federal Aviation
Administration
FAA Guide to
Ground Vehicle
Operations
A Comprehensive Guide
to Safe Driving on the
Airport Surface
TC11-0020

Traffic levels rise, airports expand, surface routes change, and you, the vehicle driver, are expected to understand how to safely move about the airport. Besides learning about the different movement areas on the airport, the added combination of changes in weather, time of day and amount of aircraft traffic makes the risk of error higher than ever.

Runway incursions are a serious safety concern and significantly impact safe operations at any airport. Incursions, which also can occur on taxiways although not considered runway incursions, have involved air carrier aircraft, military planes, general aviation aircraft, air traffic controllers, ground vehicles and pedestrians.

A Runway Incursion (RI) is defined as any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and takeoff of aircraft. There are three types of RIs: Operational Errors (OE), Pilot Deviations (PD) and Vehicle/Pedestrian Deviations (V/PD).

Operational Errors involve air traffic control (ATC) and Pilot Deviations typically involve an airman's mistake. A V/PD occurs when a vehicle or pedestrian has entered the runway safety area without authorization from air traffic control. Annually, V/PD's comprise approximately 20% of total runway incursions.

The information presented in this brochure is focused on helping to inform and educate vehicle drivers about the various signs, lights, markings, phraseology and other procedures utilized in an airport environment. Listed below are some basic things to remember and practice before operating a vehicle on the airport:

FAA Guide to Ground Vehicle Operations
Introduction

- ✈ Review and understand airfield signage and markings.
- ✈ Review the most up-to-date airport diagram prior to moving the vehicle. Have the airport diagram out and available for immediate reference while driving in the operational area.
- ✈ Review current airfield information for any taxiway closures, runway closures, construction activity or other surface risks.
- ✈ Ensure appropriate vehicle lights (high beams, flashers, beacons and strobes) are operational prior to driving on the airport surface. Flashers and beacons help ATC, aircrews and other operators see vehicles in the movement area, especially during periods of reduced visibility and at night.
- ✈ Use service roads whenever possible to minimize time spent on taxiways and runways.
- ✈ During radio transmissions, use proper aviation phraseology and speak in a clear, concise manner.
- ✈ Copy your clearance and review the assigned route. Read back all clearances.
- ✈ If you do not understand an instruction, clarify with ATC before proceeding.
- ✈ While driving, refrain from using cell phone, texting or engaging in unnecessary conversation.
- ✈ Get as familiar as possible with the airport's roads, taxiways and runways before driving solo on the airfield. If possible, have someone who is very familiar with the airport accompany you until you are proficient at operating on the movement area.

The ***FAA Guide to Ground Vehicle Operations*** was created for you, the driver of a tug, fuel truck, baggage cart or other airport vehicle. This guide is not intended to provide comprehensive coverage of everything there is to know about surface safety. Rather, it focuses on five areas that are most important, as well as containing additional information and a chance for you to test your overall comprehension with a quiz.

Airport Basics

Airfield Signs, Markings and Lighting

Towered Airports

Non-Towered Airports

Aviation Phraseology

Additional Information

Self-Assessment

FAA Guide to Ground Vehicle Operations
Introduction

Each section identifies safety measures and information that will help you maintain situational awareness while on the airfield. "Situational awareness" is defined as being aware of your location on the airfield and how that location relates to your destination, other vehicles and aircraft. It can be maintained consistently by:

- ✈ Understanding and following Air Traffic Control (ATC) instructions and clearances.
- ✈ Using an airport diagram.
- ✈ Knowing the meaning of the visual aids available on the airport, such as airfield markings, signs and lights.

Maintaining situational awareness will help you avoid errors that lead to runway incursions. Runway incursions are a serious safety concern and it doesn't take much to be involved in one. Incursions and collisions have included all types of commercial, military and private aircraft as well as *GROUND VEHICLES*. Some have resulted in fatalities. All employees who operate vehicles or motorized equipment on airports have key responsibilities in these safety efforts, as this guide outlines.



AIRPORT BASICS

This section outlines the basic features of any airport. There may be important unique aspects to the airport on which you drive, such as dedicated vehicle lanes, areas not visible to controllers or nonstandard airport traffic patterns. Be aware and know the rules of your airport.

Runway Safety Area

The Runway Safety Area (RSA) is an area surrounding the runway, and is measured from the runway ends and centerline. Much like the shoulder area on a highway, the runway safety area is intended for use by aircraft in emergency situations, i.e., landing short of, veering off of, or overshooting the runway, and always should be free of vehicles, equipment and pedestrians any time aircraft are taxiing, taking off or landing. When the tower is in operation, vehicles and pedestrians are required to have clearance to access these areas. During periods when the tower is not operating or at a non-towered airport, extreme caution should be used.

The RSA can be identified by a hold line, also known as a holding position marking, which is painted in yellow on taxiway surfaces and collocated with a holding position sign. The holding position sign has a red background with white characters. The actual dimensions of the RSA will vary depending on the tail height and wing span of the largest aircraft authorized to utilize the airport. Its distance from the runway centerline may extend up to 280 feet across and as much as 1,000 feet beyond the runway ends.



FAA Guide to Ground Vehicle Operations
Airport Basics

Aprons/Ramps

Aprons, also called ramps, are the areas where aircraft park, load and unload. Your work may require you to drive on an apron. In addition to watching for moving aircraft on the apron, be careful to maintain a safe distance when working around parked aircraft. Aside from nicks and dents that are expensive to repair and can affect the airworthiness of the aircraft, you could get hurt and your vehicle damaged when an aircraft starts its engine. This hazard is called jet blast or prop wash. There have been several cases where vehicles have been overturned by jet blast. Drivers should be aware of the rotating red beacon(s) located on the aircraft's tail, and sometimes on its underside. The beacon is typically illuminated in conjunction with imminent engine start.



Runway Markings are WHITE

Runways have white numbers on each end, centerline stripes down the middle and may have white lines along the edges. Runways that are served by an instrument approach will have more elaborate markings such as those shown in Figure 1.1.

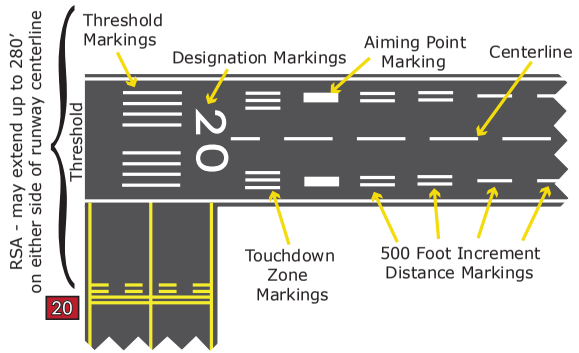


Figure 1.1 – Runway Markings (not to scale).

Taxiway Markings are Yellow

Taxiways are areas used by aircraft to get to and from the apron/ramp and the runway. Taxiways look similar to runways, but are usually not as wide. Instead of numbers, taxiways use letters or letter/number combinations for designators. See Figure 1.1

BEST PRACTICES FOR SAFE DRIVING

On the Movement Areas

- Together, runways and taxiways are known as the MOVEMENT AREAS of the airfield.
- Airport diagrams provide the layout and designations of runways and taxiways, show the location of major facilities and are essential to navigating the airfield surface. Always have a current airport diagram in your vehicle.
- If you are required to drive on or work in areas adjacent to runways, be aware that aircraft wings and engines may extend over these areas. ATC approval is typically required to operate in these areas.
- If you become uncertain of your location on the airport movement area, **STOP** and immediately contact ATC for help.

EXPLICIT RUNWAY CROSSING CLEARANCES: Never cross a holding position marking including hold lines for inactive or closed runways without explicit ATC instructions. Instructions to cross a runway will be issued one at a time. An aircraft or vehicle must have crossed the previous runway before another runway crossing is issued.

FAA Guide to Ground Vehicle Operations
Airport Basics

- Know your airfield markings, signs and lighting (as outlined in the next section). Be careful not to hit taxiway edge lights.

Around Aircraft

- Aircraft cockpit windows have a limited viewing area. It can be difficult or impossible for pilots to see vehicles and pedestrians, particularly behind the wings or under the nose of the aircraft.
- Always yield the right-of-way to moving aircraft. Do not assume the pilot will see you, especially in busy areas like aprons/ramps where pilots are busy with preflight checks.
- If a pilot is about to start the engine or the engine is running, the aircraft's red rotating beacon(s) should be turned on as well.

While Communicating with Air Traffic Control (ATC)

- Avoid distractions and focus on where other vehicles and/or aircraft are on the airfield, especially on your intended route.
- Always use standard aviation phraseology and proper communications procedures when contacting ATC in order to facilitate clear and concise communications.
- Write down taxi instructions, especially instructions that are complex. This can help reduce your vulnerability of forgetting part of the instruction.
- When in doubt, **STOP** and ask for help or clarification from ATC.

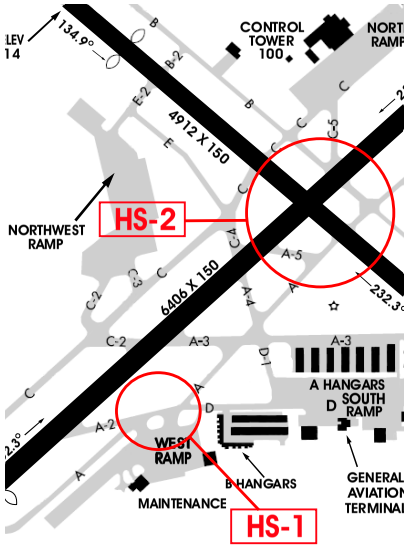
During Construction

- Extra vigilance is necessary when driving on an airport during construction. Normal driving routes may be altered, runways and taxiways may be closed, runway thresholds may be displaced or relocated and hot spots may be identified. Therefore, remember to review your expected driving route against areas of construction, especially if you are operating a rescue vehicle.

Hot Spots

- ICAO defines a hot spot as a location on an aerodrome movement area with a history or potential risk of collision or runway incursion, and where heightened attention by pilots and drivers is necessary.

- A hot spot is a runway safety related problem typically at a complex or confusing taxiway/taxiway or taxiway/runway intersection. As a vehicle driver, it is your responsibility to be familiar with these areas and use extreme caution when driving in, or near them. The airport diagram will usually, but not always point out designated hot spots. Be certain to use the most up-to-date diagram as hot spots will remain charted until such time the increased risk has been reduced or eliminated.



For more information on hot spots, refer to the Airport Diagrams chapter in the Airport Facility Directory (AFD). Also visit: www.faa.gov/airports/runway_safety/hotspots/hotspots_list

SIGNS AND MARKINGS

As a driver, it is important that you know the meanings of the signs and markings used on airports as navigational aids. Sometimes the information on the sign is also painted on the airport pavement. An overview of some of the most common signs and markings is described on the following pages. For more detailed information, see the FAA Aeronautical Information Manual (AIM).

Runway Holding Position Marking

Painted yellow on the taxiway pavement and collocated with the holding position sign, this is an airport version of a stop sign. As you approach the runway, you will see two solid yellow lines with two dashed lines. Prior to reaching the solid lines, it is imperative that you **STOP** and do not cross the lines until you have clearance from ATC. When the tower is closed or you are operating at a non-towered airport, you may cross only when the runway is clear of aircraft, and then cross with extreme caution. Always look both ways before you cross any runway!



When exiting a runway, you will see these same markings, except your vehicle will be approaching the dashed lines. Your vehicle must completely cross both the dashed and the solid lines to be clear of the runway.

Runway Holding Position Sign

May be seen as a sign and/or painted on the pavement, it has white characters on a red background. This sign/marking is collocated with the surface painted holding position markings on taxiway and runway intersections.



Do not drive past this sign or marking without a clearance from ATC. Doing so without clearance from the tower poses a hazard to yourself and others. When the tower is closed or you are operating at a non-towered airport, you may cross only when the runway is clear of aircraft, and then you should proceed with extreme caution.

Location Signs and Markings Black background with yellow letters and/or numbers. These signs and surface-painted markings indicate your location. *REMEMBER: BLACK SQUARE, YOU'RE THERE. (See Figure 2.1)*



Runway **Taxiway**

Taxiway Direction Signs and Markings These signs and markings with a yellow background and black characters indicate the direction toward a different taxiway leading off a runway or out of an intersection. *YELLOW ARRAY, LEADS THE WAY. (See Figures 2.1 and 2.2)*



ILS Critical Area Holding Position Signs and Markings May be seen as a sign (as shown here), and/or as a painted surface marking. These are utilized to show the boundary of the runway's ILS critical area. Hold short of this area when instructed to by ATC.



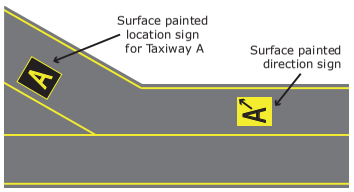


Figure 2.1 – Surface painted location and direction markings.

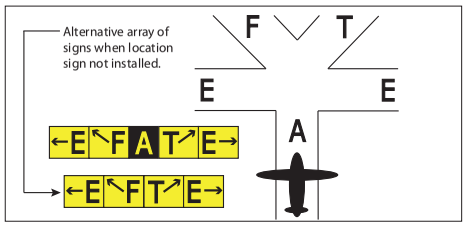
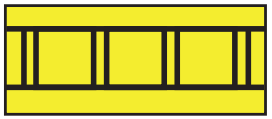


Figure 2.2 – Examples of taxiway sign arrays with and without current location on Taxiway Alpha.

Holding position markings for ILS critical areas appear on the pavement as a yellow horizontal ladder and extend across the width of the taxiway. An ILS holding position sign with white characters on a red background is typically situated adjacent to these ILS holding position markings. Hold short of this area when instructed to by ATC.



ILS Boundary Sign This sign identifies the boundary of the ILS critical area for pilots and vehicle operators exiting the runway. Pilots and vehicle operators must proceed beyond this sign to clear the ILS critical area when instructed to do so by ATC.



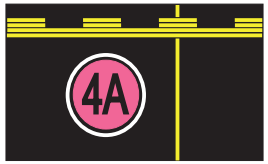
Non-Movement Area Boundary Markings
A single solid line along with single dashed yellow lines, this marking divides the movement and non-movement areas on the airfield. When you are positioned on the solid line side of the marking, or the non-movement area, ATC clearance is required for you to drive across into the movement area.



Runway Safety Area Boundary Sign Yellow sign with black markings. Visible only when exiting the runway. The sign is typically used on towered airports where a controller commonly requests a pilot to report clear of a runway, which occurs when this sign is passed.



Geographic Position Markings Pink with black and white. Some large airports use these markings in low visibility conditions as position points on the taxiway.



Helicopter Landing Area Marking Some airports have a designated helicopter landing pad. This area is depicted with an "H" inside of a square. Be especially careful when you drive near helipads. Look up for landing helicopters. As is the case for aircraft, yield the right-of-way to a helicopter.





Destination Signs Yellow background with black letters. The taxiways at your airport may have these signs next to them to identify the direction to a specific destination, e.g. parking area.

Enhanced Taxiway Centerlines A dashed line painted on each side of the existing taxiway centerline extending up to 150' from the holding position marking. This is to further alert aircraft and vehicles that they are approaching a runway safety area.



Relocated Threshold A point on the runway other than the beginning of the full strength pavement, which is not available for the landing or takeoff of aircraft. Thus, a relocated threshold marks the end of the runway. The abandoned runway area may or may not be available for taxiing. Possible causes for threshold relocation include construction or other airport maintenance.



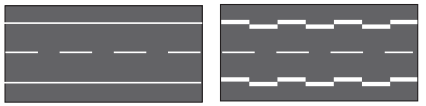
FAA Guide to Ground Vehicle Operations
Airfield Signs, Markings and Lighting

Chevrons Large yellow painted arrows that identify paved blast pads, stop areas, and EMAS (engineered materials arresting systems). A minimum of two chevrons will be painted and aligned with the runway end. The pavement marked by chevrons is not to be used, unless in conjunction with an EMAS when it may be used to help stop an aircraft overrun.



Aprons/Ramps

Aprons/Ramps have markings for aircraft parking and tie-downs. Some airport aprons/ramps also have special markings for vehicle operations. If there are vehicle or roadway markings, you should always drive your vehicle within those marked areas. In addition, taxiways may be marked on the apron to show aircraft routes to gates and parking areas.



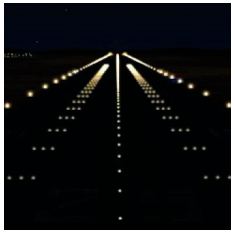
Examples of vehicle surface markings; roadways bounded by "zipper" markings are also used by aircraft.

When driving near navigational aids, stay out of the protected areas around them to avoid interfering with their signals. If a road or taxiway is close enough to an ILS to affect it, there should be an ILS holding position sign like the one depicted on page 12.

LIGHTING

There are many different lighting combinations that may be located on some airports, especially where aircraft operations are conducted in lower visibility ranges.

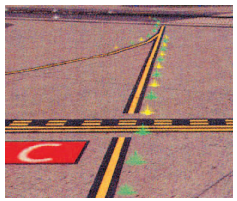
Runway Edge and Centerline Lights Runway edge lights are clear/white, except on instrument runways where yellow replaces white on the last 2,000 feet or half the runway length, whichever is less, to form a caution zone for landings. Centerline lights alternate red/white starting 3,000 feet from the end, and are solid red starting 1,000 feet from the end.



Taxiway Edge Lights or Reflectors are blue in color and used to outline the edges of taxiways during periods of darkness or restricted visibility conditions.



FAA Guide to Ground Vehicle Operations
Airfield Signs, Markings and Lighting



Taxiway Centerline Lights or Reflectors are green except for the lead-on and lead-off lights, which alternate yellow and green to indicate that you are entering or leaving the runway environment.

Runway Guard Lights are flashing yellow lights that can be in-pavement or elevated and are used to help identify a runway holding position.



In-Pavement Runway Guard Light

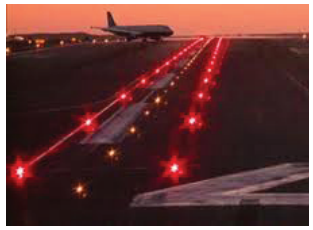


Elevated Runway Guard Light

Runway Status Lights (RWSL) provide a visual warning to vehicle drivers and pilots that the runway is not safe to enter. RWSL consist of the following warning signals: runway entrance lights (REL) and runway intersection lights (RIL) for vehicles and aircraft crossing or entering a runway from intersecting taxiways or runways, and takeoff hold lights (THL) for aircraft awaiting takeoff. The system will be operational at 23 of the nation's major airports by the end of 2015.



Runway Entrance Lights



Takeoff Hold Lights

VEHICLE LIGHT GUN SIGNALS

Air traffic controllers have a backup system for communicating if radios fail. Controllers use a light gun that flashes different colors to tell pilots or vehicle drivers what to do. Even a failed radio is not an excuse for proceeding without a proper clearance. If you are ever working on a runway or taxiway and radio communication fails, you should:

- Turn your vehicle toward the tower.
- Flash your headlights.
- Wait for the controller to signal you with the light gun.
- Be patient! If the controller's attention is directed toward another part of the airport, it may take a few minutes.
- If still waiting, try a different radio frequency or call from a cell phone. Store the tower phone number in your cell phone for emergencies.

Light Gun Signals

Steady Green
Cleared to go; OK to cross runway or taxiway.

Flashing Green
Cleared to taxi. **DOES NOT APPLY TO VEHICLES!**

Alternating Red/Green
Exercise extreme caution. This warning signal can be followed by another light signal as circumstances permit.

Steady Red
STOP!

Flashing Red
Clear the taxiway or runway IMMEDIATELY!

Flashing White
Return to starting point on airport.

TOWERED AIRPORTS



If your airport has an air traffic control (ATC) tower, it is a towered airport whenever the tower is operating. Pilots and vehicle drivers wanting to enter a runway or taxiway (movement areas) must first get permission from the tower.

As an operator of a vehicle, you must have authorization from ATC before you enter any part of the airport movement area. When the tower is in operation, you must utilize a two-way radio for communicating with and receiving instructions from air traffic control.

Radio Communications Procedures

- Ensure the availability of a radio capable of transmitting and receiving on the airport's ground control frequency. Perform a "radio check" to assess your radio's operability at the start of each shift.
- Each vehicle should be designated with an identifying call sign, and be marked and lighted appropriately.
- Know the standard Air Traffic Control (ATC) phraseology and never use Citizen's Band (CB) lingo or law enforcement 'ten' codes.
- Think about what you are going to say before calling the controller. Know your call sign, location on the airfield and where you intend to go.

✈ At most facilities, the above information can be included on the initial call as in the following example:

Driver:	**Cincinnati ground, vehicle one at gate four would like to cross runway one eight right at taxiway alpha and proceed to the VOR.**
Controllers:	**Vehicle one, Cincinnati ground, proceed via alpha, hold short of runway one eight right.**
Driver:	**Roger, vehicle one, proceeding via alpha, will hold short of runway one eight right.**

✈ At larger facilities or when the controller is busy, it is best to simply call the tower with your identification and wait for the controller's response as in the following:

Driver:	**Cincinnati ground, vehicle one.**
	...time elapses...
Controllers:	**Vehicle one, Cincinnati ground.**
Driver:	**Vehicle one at gate four would like to cross runway one eight right at taxiway alpha and proceed to the VOR.**

✈ Read back of all runway holding instructions is required and must include the phrase "Hold Short", the runway's identifying number and your call sign.

FAA Guide to Ground Vehicle Operations
Towered Airports



The "Aviation Terminology" section on page 25 lists air traffic control terms and phrases with definitions. You should know what they mean before driving on an airfield.

With a little practice, radio communications are not difficult. If you are ever unsure about what the controller said, or if you don't understand an instruction, ***ask the controller to repeat the communication by transmitting "SAY AGAIN".***

A controller, even one who is extremely busy, would rather repeat and explain instructions than have a misunderstanding lead to a runway incursion. Don't proceed thinking that the instructions will become clear once you drive a little farther.

Advance Coordination

When you contact the tower before an operation, you will receive instructions on how to proceed. Be sure you understand your route, stopping points and holding positions. If you are not sure where you are going and would like turn-by-turn directions, ask the controller for "progressive" taxi instructions.

Use extreme caution when you hear the phraseology "go ahead". It is only meant for you to proceed with your message and is not to be used for any other purpose. It **NEVER** means to proceed in moving about, or to drive on the airfield.

NON-TOWERED AIRPORTS

When the control tower is closed or if there is no tower, the airport is referred to as non-towered. At a non-towered airport, you do not need controller permission before entering a runway or taxiway. Below are some best practices for operating on a non-towered airport:

- When you approach the runways and taxiways, STOP, LOOK both ways, and LISTEN for aircraft that are landing or taking off. Vehicle windows should be open to do this properly.
- Alert others when you are using a taxiway or runway by always making an announcement on the radio before you enter. Be specific with your location and intentions.
- Always yield the right-of-way to taxiing aircraft and give them plenty of room. If an aircraft is headed toward you on the same taxiway, move out of the aircraft's way.
- Always carry a radio tuned to the airport's Common Traffic Advisory Frequency (CTAF) or UNICOM.
- If an aircraft is about to land on a runway that you need to cross, stop well clear of the runway. Continue to yield to the aircraft until it has landed and taxied off of the runway.
- Be aware that some aircraft at non-towered airports are not equipped with radios.



FAA Guide to Ground Vehicle Operations
Non-Towered Airports

- Before you cross a runway, ensure that no potentially conflicting aircraft are taxiing, landing or taking off. Be aware of aircraft at non-towered airports that frequently make touch-and-go landings (immediately after landing, full power is applied and the aircraft takes off again).
- If your vehicle has a rotating beacon, be sure to turn it on anytime you are on the airport surface. Turn on headlights as well, being careful not to blind any pilots in the area.

Example of a self-announcement by driver on UNICOM or CTAF:

Driver: Millville traffic. Ops one vehicle entering runway 28 at approach end and proceeding full length to the end of the runway.

Traffic Patterns

Aircraft approaching a runway for landing usually follow a standard landing pattern. Most runways are positioned so planes will take off and land into the wind. In most cases, the pattern is a rectangular box with the pilot making all turns to the left, as shown in Figure 3.1. In a few cases, airports will use right traffic patterns. However, don't assume all aircraft will always be flying in the standard pattern - it is not required, only recommended - so keep a visual look out to the sky just

Pilot: Millville traffic. Cherokee two zero niner zero whiskey, entering left downwind runway one zero, Millville.

in case a pilot decides to fly a 'straight in' approach and doesn't enter the standard traffic pattern. Similarly, if a pilot announces "short final", expect that aircraft's landing to be imminent.

Pilots announce their position on the Common Traffic Advisory Frequency (CTAF)/Unicom using the names of the segments of the traffic pattern: Upwind, Crosswind, Downwind, Base and Final. See Figure 3.1

Extra vigilance is essential at non-towered airports, or when the control tower is not operating. While there may be CTAF or UNICOM frequencies available, pilots are not required to communicate or announce their position in the traffic pattern or on the surface. As a result, a driver can be lulled into complacency because the airport is not very busy. Nevertheless, always remain alert for the unexpected, even when aircraft traffic levels are light.

Another factor involves the runway angle or slope, which makes it difficult or impossible to see the entire length of the runway. As a result, an aircraft can suddenly appear on a runway when you are crossing. Generally, it is good practice to cross runways at their ends. If one is available, a perimeter road or taxiway is the recommended route for crossing a runway at a non-towered airfield.

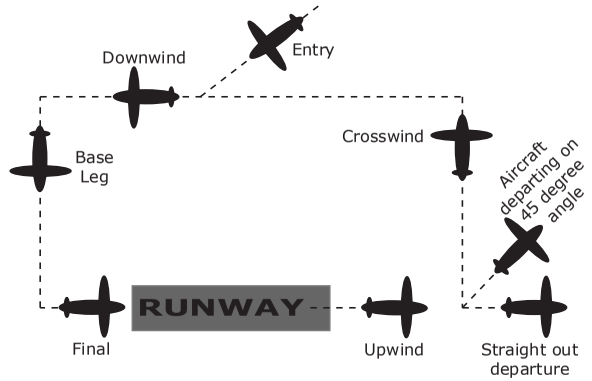


Figure 3.1 – Diagram of airport traffic pattern operations.

AVIATION TERMINOLOGY

This section contains a glossary of terms commonly used in ground or surface operations. For a complete listing of all ATC phraseology, consult the FAA Aeronautical Information Manual (AIM), which can be accessed at: http://www.faa.gov/air_traffic/publications/atpubs/aim/

Acknowledge - Let me know that you have received and understood this message.

Advise Intentions - Tell me what you plan to do.

Affirmative - Yes.

Confirm - My understanding of your transmission is _____ : Is that correct?

Correction - An error has been made in the transmission and the correct version follows.

Final - Commonly used to mean that an aircraft is on the final approach course or is aligned with a landing area.

Go Ahead - Proceed with your message. Not to be used for any other purpose.

Hold or Hold Position - Stay in place where you are currently located.

Hold Short of... - Proceed to, but hold short of a specific point and maintain appropriate distance to avoid interfering with other traffic. With respect to runways, always stop at the runway

holding position marking unless otherwise directed by ATC. A read back confirmation to ATC is required anytime a "hold short" instruction is given.

Line Up and Wait (LUAW) - This phrase has replaced the "Position and Hold" instruction by a controller to direct a pilot to enter the runway and await takeoff clearance.

Negative - No; Permission not granted; That is not correct.

Proceed - You are authorized to begin or continue moving.

Read Back - Repeat my message back to me.

Roger - I have received your last transmission; but not to be used to answer a question requiring a “yes” or “no” response (see Affirmative, Negative).

Say Again - Repeat what you just said.

Stand By - Wait for further information, as in “stand by for clearance”.

Unable - Indicates inability to comply with a specific instruction, request or clearance.

Verify - Request confirmation of information.

Without Delay - Follow instructions expeditiously, specifically and safely.

Wilco - I have received your message, understand it and will comply.

FAA Guide to Ground Vehicle Operations
Aviation Phraseology

AVIATION PHONETICS

Because some letters and numbers may sound similar, the following list will reduce confusion. For example, Taxiway B would be referred to as Taxiway Bravo, and Runway 29 is Runway Two Niner. As a vehicle driver, commit this phonetic alphabet to memory.

A Alpha	M Mike	Y Yankee
B Bravo	N November	Z Zulu
C Charlie	O Oscar	0 Zero
D Delta	P Papa	1 One
E Echo	Q Quebec	2 Two
F Foxtrot	R Romeo	3 Three
G Golf	S Sierra	4 Four
H Hotel	T Tango	5 Five
I India	U Uniform	6 Six
J Juliet	V Victor	7 Seven
K Kilo	W Whiskey	8 Eight
L Lima	X X-ray	9 Niner

ADDITIONAL INFORMATION

In addition to all the information provided to you in this publication, there are other things to be aware of while operating a vehicle on the airport.

Foreign Object Debris (FOD)

Trash or rocks sucked into a jet engine can shred parts of the engine in seconds. A rock caught by a propeller can damage the propeller, as well as become a deadly projectile. Make your airport a safer place by putting all trash in a covered container that won't be blown over. Get in the habit of picking up any trash and debris that you notice while driving around the airport. Avoid tracking mud and rocks onto taxiway and runway surfaces.



FAA Guide to Ground Vehicle Operations
Additional Information



Reporting Accidents

If you are involved in an accident, report it immediately. If a collision occurred between you and an aircraft, it's critical that the aircraft not be flown until the damage can be inspected and repaired.

Aircraft Rescue and Fire Fighting (ARFF)

Just as when you are in highway traffic, if you see an airport emergency vehicle with its lights on, do not proceed until it has cleared. Always stay alert for any type of emergency activity and accompanying vehicles.

All vehicles operating at a towered airport, including ARFF and police, are required to receive explicit runway crossing instructions from ATC. This applies to all runways encountered: active, inactive and closed, regardless of the type of emergency!

Security

Depending on the type of airport you work on, the security system may be as simple as a fence or it may include items as complicated as computer controlled automatic gates with television screen monitors. At large air carrier airports, security will be provided by the airport's police department or local law enforcement. At smaller airports, the airport manager or the fixed-base operator may be responsible for security.

If you see a gate left open, close it, and then report it to the airport security office. Never let someone follow you through a gate. If you see a strange person or vehicle that appears lost, stop and offer assistance. Or, if your airport has a security department, contact them for help. If you work at an air carrier airport, the airport manager has a complete security plan of the airport with detailed procedures for specific situations. Be sure you know what your responsibilities are and ask your supervisor if there is anything about which you are unsure.



FAA Guide to Ground Vehicle Operations
Additional Information

Nighttime or Bad Weather Driving

If you are required to drive on the airport at night, on your first couple of trips take someone along who is very familiar with the airfield. Things look different at night. The same applies if you are driving in bad weather. In both cases, allow yourself extra travel time and drive slower than you would normally. Remember, your vehicle's rotating beacon and headlights will provide additional visibility and help to identify your vehicle to others.

During winter conditions, signs and markings may be obscured by snow. Snow equipment may be operating in low visibility conditions and may not see your vehicle. Use caution; remember there are extra risks present.



This guide has covered the basics of how to safely drive on an airport. Remember to be courteous to your fellow drivers, pay attention, drive carefully, follow instructions, avoid distractions, obey the rules and regulations and set a good example. Eventually, with experience, you will attain a comfortable working knowledge of how to safely move around.

Conclusion

If there is something you don't understand, seek clarification before proceeding, especially when you are at a towered airport with an operating ATC tower. With experience, you will attain a comfortable working knowledge of moving about the airport surface safely. Always maintain situational awareness and contact ATC if you are unsure, lost or unclear of an instruction.

For more information:

Office of Runway Safety
www.faa.gov/go/runwaysafety

Aeronautical Information Manual (AIM)
http://www.faa.gov/air_traffic/publications/atpubs/aim/

Aeronautical Navigation Services Group (AeroNav) Airport Diagrams
www.faa.gov/airports/runway_safety/diagrams

Airport Security - TSA Part 1542
www.tsa.gov/research/laws/regs/editorial_1785.shtm

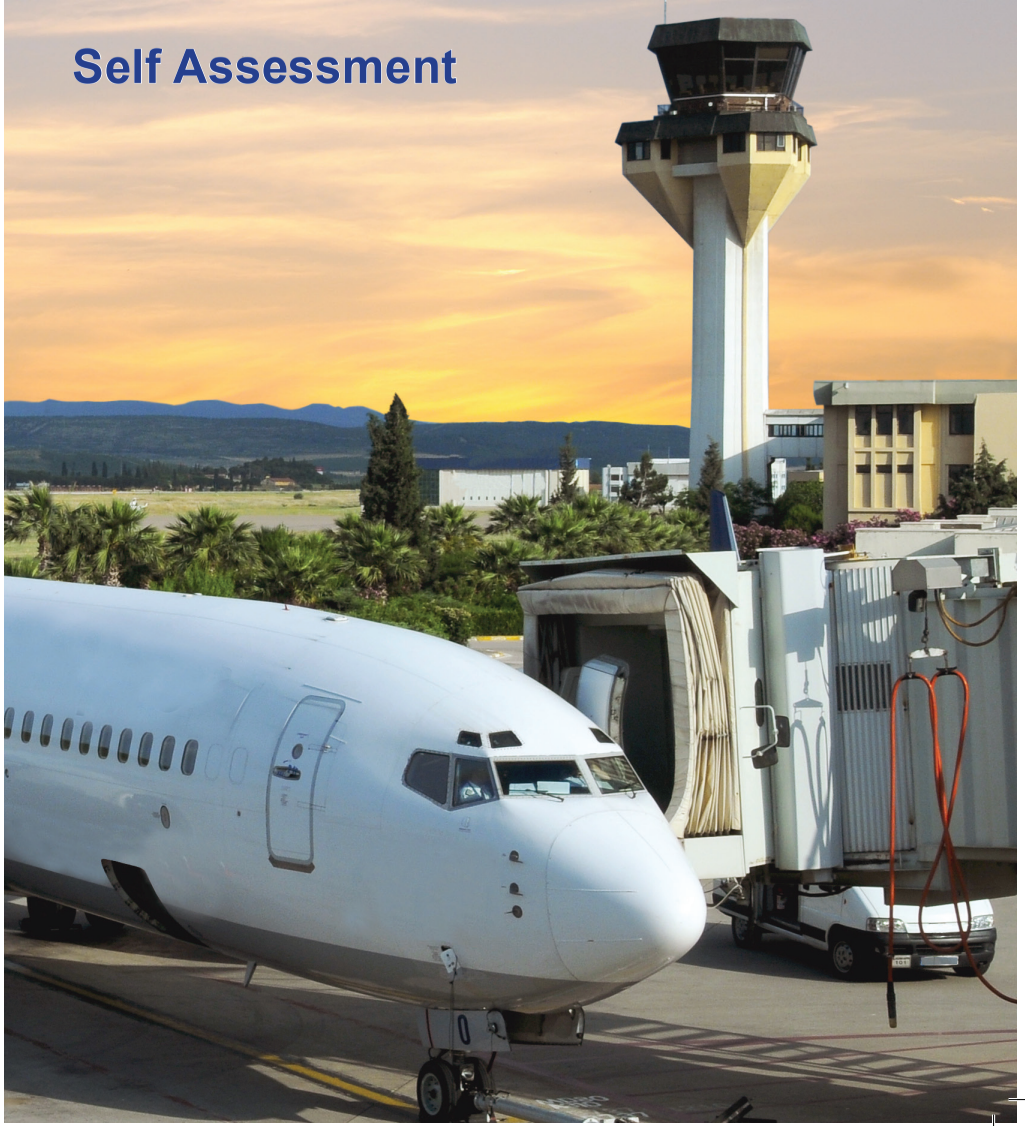
Runway Safety - Vehicle Drivers
www.faa.gov/airports/runway_safety/vehicle

Runway Safety - Hot Spots List
www.faa.gov/airports/runway_safety/hotspots/hotspots_list

Federal Aviation Administration

FAA Guide to Ground Vehicle Operations

Self Assessment



1. A controller who says, "Go ahead" means:

A. Proceed as requested.

B. Continue straight ahead.

C. State your message.

2. The red and white sign next to the taxiway is called a runway holding position sign. This sign indicates:



A. Runway 4/22 is ahead. This sign is collocated with surface painted holding position markings and indicates that you must have clearance from ATC to proceed.

B. That you should follow the sign to get to the parking apron.

C. Nothing to me, it's only there for the pilot's use.

3. Two solid yellow lines with two dashed yellow lines represent the marking for a runway holding position. All aircraft, vehicles and pedestrians approaching the runway are required to have a clearance from ATC before proceeding beyond the two solid yellow lines.



A. True

B. False

FAA Guide to Ground Vehicle Operations
Self Assessment

4. Runway markings are:

A. White

B. Yellow

C. Red

5. Taxiway markings are:

A. White

B. Yellow

C. Red

6. As you are on your way to a construction site on the airfield, you are approaching a runway and have not received a specific instruction to cross the runway. What will you do?

A. Drive to the edge of the runway to see if it is clear of landing or departing aircraft, and then proceed.

B. Stop prior to crossing the holding position marking and contact ATC for clearance.

C. Use your cell phone to call someone at the construction site and ask if it is ok to cross the runway.

D. Nothing, since vehicle drivers are not required to obtain clearance to cross runways.

7. You are driving in a vehicle designated OPS-1 awaiting clearance to cross runway 19, and you hear ATC clear OPS-4 across runway 19. What will you do?

A. Proceed across runway 19 since you know that ATC meant to say "OPS-1".

B. Contact OPS-4 on the radio to advise they are cleared to cross runway 19.

C. Call ATC to clarify if the clearance to cross runway 19 was for OPS-1.

D. Turn around and return to Operations because your shift is ending.

8. A Runway Incursion is defined as any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and takeoff of aircraft.

A. True

B. False

9. What does "Explicit Runway Crossing Clearance" mean?

A. A "taxi to" clearance will allow you to cross multiple runways.

B. Typically, instructions to cross a runway will be issued individually for each runway encountered.

C. It replaces "Position and Hold".

D. It's a trick question, no such instruction exists.

FAA Guide to Ground Vehicle Operations
Self Assessment

10. On a runway you see this sign. What does it mean?



A. You are approaching runway 22.

B. You are on runway 22.

C. It is an informational sign only.

D. There are 2,200 feet remaining to the end of the runway.

11. At night what color lights/reflectors mark taxiways?

A. White

B. Blue

C. Red

D. Yellow

12. When driving in the area immediately behind a large jet aircraft with its engines running, a driver should:

A. Not be concerned about danger from the jet blast because a typical car/van is too heavy to be affected.

B. Stop or stay well back, and do not proceed too closely behind the aircraft.

C. Cross the area of jet blast at a perpendicular angle to minimize the hazard.

D. None of the above.

13. Unless contrary instructions have been received from air traffic control, a vehicle should always yield to an aircraft.

A. True

B. False

14. This sign on a taxiway indicates:



A. You must have clearance by ATC to taxi past these signs.
B. Distance to FBO is 2,333 feet to the right.
C. FBO is southeast and runway 22/33 is east of your location.
D. The direction towards location of the FBO & runways 22/33.

15. If, at a non-towered airport, you see an aircraft approaching the runway to land when you are waiting to cross the same runway, you should:

A. Hold short of the runway until the aircraft is past the point at which you will cross the runway, then proceed when it is safe.
B. Proceed across if the aircraft has not announced its position on the CTAF or UNICOM frequency.
C. Contact the pilot by radio and see if he or she intends to make a touch and go landing.
D. Flash your headlights at the aircraft.

16. You are driving at a non-towered airport. An aircraft that has announced its position on the UNICOM frequency as 'downwind' is flying:

A. Perpendicular to the runway after initial climb and turn.
B. Parallel to the runway in the direction opposite landing.
C. An approach to land with the wind instead of into the wind.
D. Any of the above.

FAA Guide to Ground Vehicle Operations
Self Assessment

17. If an air traffic controller directs you to do something that you believe is unsafe:

A. You must comply or face disciplinary action.
B. You should comply and then call your supervisor as soon as possible.
C. You should ask the controller for clarification before complying with the instruction.
D. Flash your headlights and then proceed.

18. The yellow painted marking at the beginning of this runway indicates:



A. The pavement can be used for takeoff only.
B. The pavement can be used for landing only.
C. The runway threshold has been relocated.
D. Does not apply to vehicles.

19. This sign is located on a taxiway. What does it mean?



A. You must have clearance from ATC to taxi past this sign.

B. Taxiway Bravo is west of your location on the airport.

C. It is a directional sign informing you that taxiway Bravo is the next left turn.

D. None of the above.

20. If radio contact is lost and the tower signals with a flashing red light, I should:

A. Stop.

B. Clear the runway or taxiway.

C. Ignore the signal.

D. Return to my point of origin on the airport.

21. You are driving on a non-towered airport. An aircraft that has announced its position on the UNICOM frequency as "base leg" is flying.

A. Perpendicular to the runway after initial climb and turn.

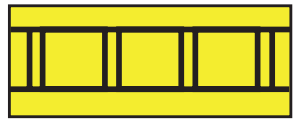
B. Parallel to the runway in the direction opposite landing.

C. Perpendicular to the runway about to turn final and land.

D. None of the above.

FAA Guide to Ground Vehicle Operations
Self Assessment

22. What does this sign indicate?



A. This sign next to a taxiway identifies the ILS Critical Area, which you must drive beyond when exiting the runway as directed by ATC.

B. You should be directed by ATC before proceeding beyond this sign.

C. Indicates that you are at a runway threshold.

D. Both A and B.

23. What do the chevrons at the end of a runway indicate?



A. The pavement is to be used for takeoff only.

B. The pavement is to be used for landing only.

C. The pavement is not to be used.

D. Indicates the current wind direction.

24. What is the procedure when you approach these painted markings from the solid line side?



A. Proceed with caution.

B. No permission needed prior to crossing.

C. You must always have permission from air traffic control prior to crossing.

D. No procedure required.

25. What does this surface painted marking mean?



A. Since it is a single solid & single dashed line, it does not apply to ground vehicles.

B. Divides movement area from non-movement area; crossing solid line requires ATC authorization.

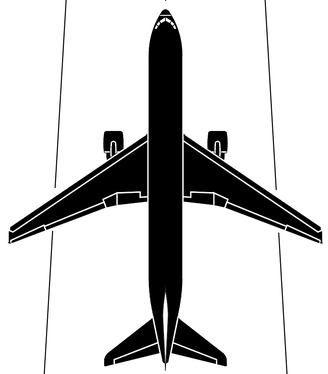
C. It defines the taxiway edge.

D. You can pass other vehicles when you are on the dashed side.

1.	**C**	**16.**	**B**
2.	**A**	**17.**	**C**
3.	**A**	**18.**	**C**
4.	**A**	**19.**	**C**
5.	**B**	**20.**	**B**
6.	**B**	**21.**	**C**
7.	**C**	**22.**	**D**
8.	**A**	**23.**	**C**
9.	**B**	**24.**	**C**
10.	**B**	**25.**	**B**
11.	**B**		
12.	**B**		
13.	**A**		
14.	**D**		
15.	**A**		

CITY OF KANSAS CITY, MISSOURI

AVIATION DEPARTMENT



PLANS FOR
KANSAS CITY INTERNATIONAL AIRPORT

KCI PROJECT NO. 62230566

TAXIWAY E AND TAXIWAY J REHABILITATION

A.I.P NO. 3-29-0040-090
A.I.P NO. 3-29-0040-091

J. JADE LISKA
DEPUTY DIRECTOR OF AVIATION
PLANNING & ENGINEERING

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

ISSUED FOR BID

CIVIL ABBREVIATIONS

AC	ACRE, ADVISORY CIRCULAR
ADG	AIRPLANE DESIGN GROUP
AIP	AIRPORT IMPROVEMENT PROGRAM
ALSF-2	APPROACH LIGHT SYSTEM WITH SEQUENCED FLASHERS
AMSL	ABOVE MEAN SEA LEVEL
AOA	AIR OPERATIONS AREA
ARFF	AIRCRAFT RESCUE AND FIRE FIGHTING
ASDE	AIRPORT SURFACE DETECTION EQUIPMENT
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ASR	AIRPORT SURVEILLANCE RADAR
ATCT	AIR TRAFFIC CONTROL TOWER
ATO	AIR TRAFFIC ORGANIZATION
AVE	AVENUE
B	BORE
BM	BENCHMARK
C	CORE
CB	CAN BANK
CC	CURVE CENTER
CFR	CODE OF FEDERAL REGULATIONS
CIR	CIRCLE
CL	CENTERLINE
CLR	CLEARANCE
CMP	CORRUGATED METAL PIPE
COMM	COMMUNICATION
CP	CONTROL POINT
CQCP	CONTRACTOR QUALITY CONTROL PROGRAM
D	DEPTH
DEG	DEGREE
DIA	DIAMETER
DR	DRIVE
DWG	DRAWING
E	EAST, EASTING
E, ELEC	ELECTRICAL
EA	EACH
ELEV	ELEVATION
ENE	EAST NORTHEAST
ESE	EAST SOUTHEAST
EX	EXISTING
F	FAHRENHEIT
FAA	FEDERAL AVIATION ADMINISTRATION
FAA-E	FAA ELECTRICAL
FOD	FOREIGN OBJECT DEBRIS
FT	FEET, FOOT
G	GAS
GAL	GALLON
HAZMAT	HAZARDOUS MATERIALS
HDPE	HIGH-DENSITY POLYETHYLENE
HMA	HOT MIX ASPHALT
ID	IDENTIFICATION
KCAD	KANSAS CITY AVIATION DEPARTMENT
L, LT	LEFT
LEN	LENGTH
LF	LINEAR FEET/FOOT
LLC	LIMITED LIABILITY COMPANY
LS	LUMP SUM
MALSR	MEDIUM-INTENSITY APPROACH LIGHTING SYSTEM WITH RUNWAY ALIGNMENT INDICATOR LIGHTS
MAX	MAXIMUM
MCI	KANSAS CITY INTERNATIONAL AIRPORT
MDNR	MISSOURI DEPARTMENT OF NATURAL RESOURCES
MH	MANHOLE
MHZ	MEGAHERTZ
MIN	MINIMUM
MO	MISSOURI
MSDS	MATERIAL SAFETY DATA SHEET
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
N	NORTH, NORTHING
N/A	NOT APPLICABLE
NAD	NORTH AMERICAN DATUM
NAS	NATIONAL AIRSPACE SYSTEM
NAVAID	NAVIGATIONAL AID
NAVD	NORTH AMERICAN VERTICAL DATUM
NE	NORTHEAST
NNE	NORTH NORTHEAST
NNW	NORTH NORTHWEST
NO	NUMBER
NOTAM	NOTICE TO AIR MISSIONS
NTP	NOTICE TO PROCEED
NW	NORTHWEST
O/C	ON-CENTER
OE-AAA	OBSTRUCTION EVALUATION - AIRPORT AIRSPACE ANALYSIS
OFF	OFFSET
OPS	OPERATIONS
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PAPI	PRECISION APPROACH PATH INDICATORS
PC	POINT OF CURVATURE
PCC, PCCP	PORTLAND CEMENT CONCRETE PAVEMENT
POB	POINT OF BEGINNING
POE	POINT OF END
POFZ	PRECISION OBSTACLE FREE ZONE
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
PVIE	POINT OF VERTICAL INTERSECTION ELEVATION
PVIS	POINT OF VERTICAL INTERSECTION STATION
R, RT	RIGHT
RCP	REINFORCED CONCRETE PIPE
RCRA	RESOURCE CONSERVATION AND RECOVERY ACT
RD	ROAD
RM	REFERENCE MONUMENT
ROFA	RUNWAY OBJECT FREE AREA
RPR	RESIDENT PROJECT REPRESENTATIVE
RPU	REMOTE PROCESSING UNIT
RSA	RUNWAY SAFETY AREA
RTR	REMOTE TRANSMITTER/RECEIVER
RVR	RUNWAY VISUAL RANGE
RWY	RUNWAY
S	SOUTH
SE	SOUTHEAST
SEC	SECTION
SF	SQUARE FOOT
SPCD	SAFETY PLAN COMPLIANCE DOCUMENT
SSE	SOUTH SOUTHEAST
SSW	SOUTH SOUTHWEST
ST	STREET
STA	STATION
SW	SOUTHWEST
SWPPP	STORMWATER POLLUTION PREVENTION PLAN
SY	SQUARE YARD
T	THICKNESS
TN	TON
TOFA	TAXIWAY OBJECT FREE AREA
TRANS	TRANSFORMER
TSA	TAXIWAY SAFETY AREA
TWY	TAXIWAY
TYP	TYPICAL
U	UNDERDRAIN
US	UNITED STATES
USEPA	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
W	WIDTH
WSK	WINDSOCK
WNW	WEST NORTHWEST
WSW	WEST SOUTHWEST

SUMMARY OF QUANTITIES

ITEM	ITEM DESCRIPTION	UNIT	AS BID	AS BUILT
C-100-1	CONTRACTOR QUALITY CONTROL PROGRAM (CQCP)	LS	1	0
C-102-1	TEMPORARY SEEDING AND MULCHING	AC	16	0
C-105-1	MOBILIZATION	LS	1	0
C-106-1	MAINTENANCE OF TRAFFIC	LS	1	0
P-101-1	15" CONCRETE PAVEMENT REMOVAL	SY	2,900	0
P-101-2	±17" CONCRETE PAVEMENT REMOVAL	SY	66,100	0
P-101-3	±4" ASPHALT/±13" CONCRETE PAVEMENT REMOVAL	SY	16,850	0
P-101-4	±9" ASPHALT PAVEMENT REMOVAL	SY	26,400	0
P-101-5	2" ASPHALT COLD MILLING	SY	1,250	0
P-101-6	CRACK REPAIR	LF	1,000	0
P-101-7	PARTIAL DEPTH LEAN CONCRETE BASE REPAIR	SY	1,000	0
P-101-8	FULL DEPTH LEAN CONCRETE BASE REPAIR	SY	1,000	0
P-151-1	CLEARING AND GRUBBING	LS	1	0
P-209M-1	2" MIN. VARIABLE CRUSHED AGGREGATE BASE COURSE	SY	26,300	0
P-401-1	2" MIN. VARIABLE ASPHALT SURFACE COURSE	TN	200	0
P-501-1	6" PORTLAND CEMENT CONCRETE PAVEMENT	SY	23,000	0
P-501-2	6" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT	SY	3,300	0
P-501-3	15" PORTLAND CEMENT CONCRETE PAVEMENT	SY	2,300	0
P-501-4	15" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT	SY	600	0
P-501-5	±17" PORTLAND CEMENT CONCRETE PAVEMENT	SY	70,900	0
P-501-6	±17" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT	SY	12,200	0
P-603-1	EMULSIFIED ASPHALT TACK COAT	GAL	200	0
P-620-1	RUNWAY AND TAXIWAY MARKINGS	SF	120,000	0
P-620-2	TEMPORARY PAVEMENT MARKINGS	SF	145,000	0
P-620-3	PERMANENT PAVEMENT MARKING REMOVAL	SF	37,500	0

ITEM	ITEM DESCRIPTION	UNIT	AS BID	AS BUILT
D-751-1	UNDERDRAIN CLEANOUT	EA	18	0
T-901-1	SEEDING	AC	13	0
T-904-1	SODDING	SY	13,050	0
T-908-1	MULCHING	AC	13	0
L-108-5.1-1	UNDERGROUND CABLE, #6, 5KV, L-824 TYPE C, INSTALLED IN CONDUIT	LF	18,000	0
L-110-5.1-1	CONCRETE ENCASED UNDERGROUND CONDUIT, 2" PVC	LF	850	0
L-125-5.1-1	REMOVE EXISTING FIXTURE OR BLANK COVER	EA	18	0
L-125-5.1-2	REMOVE EXISTING FIXTURE OR BLANK COVER AND EXISTING BASE CAN	EA	182	0
L-125-5.1-3	INSTALL BLANK COVER ON EXISTING BASE CAN	EA	9	0
L-125-5.1-4	INSTALL NEW LED, L-852, UNIDIRECTIONAL TAXIWAY CENTERLINE FIXTURE, ON NEW L-868-B GALVANIZED BASE (INCLUDES FIXTURES, BASE CAN, TRANSFORMER AND BASE PLATE)	EA	3	0
L-125-5.1-5	REINSTALL EXISTING L-852, UNIDIRECTIONAL TAXIWAY CENTERLINE FIXTURE, ON NEW L-868-B GALVANIZED BASE (BASE CAN AND BASE PLATE)	EA	27	0
L-125-5.1-6	REINSTALL EXISTING LED, ELEVATED TAXIWAY EDGE LIGHT FIXTURE ON NEW L-867-B GALVANIZED BASE (BASE CAN AND BASE PLATE)	EA	4	0
L-125-5.1-7	INSTALL NEW LED, ELEVATED TAXIWAY EDGE LIGHT FIXTURE, ON NEW L-867-B GALVANIZED BASE (INCLUDES FIXTURES, BASE CAN, TRANSFORMER AND BASE PLATE)	EA	141	0
L-125-5.1-8	INSTALL NEW LED, ELEVATED TAXIWAY EDGE LIGHT FIXTURE ON EXISTING BASE CAN	EA	9	0
L-125-5.1-9	REPLACE BROKEN BOLTS	EA	60	0

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CJ09	TAXIWAY E JOINT LAYOUT AND ELEVATION PLAN STA. 164+18 TO STA. 172+18
CJ10	TAXIWAY E JOINT LAYOUT AND ELEVATION PLAN STA. 172+18 TO STA. 180+18
CJ11	TAXIWAY E JOINT LAYOUT AND ELEVATION PLAN STA. 180+18 TO STA. 188+18
CJ12	TAXIWAY E JOINT LAYOUT AND ELEVATION PLAN STA. 188+18 TO STA. 190+38
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STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT
KCI

HNTB
715 Kirk Drive
Kansas City, MO 64105
Licensee No. 001270

CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

ABBREVIATIONS, INDEX OF SHEETS AND SUMMARY OF QUANTITIES

Design: MMW	CAD File: 62230566G01.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. G01 2 of 104

CAD File: 62230566G01.dwg

GENERAL REQUIREMENTS

1. BY SUBMITTING A BID ON THIS PROJECT, THE CONTRACTOR IS ASSURING THE KANSAS CITY AVIATION DEPARTMENT (KCAD) THAT THEY ARE (OR HAVE BECOME PRIOR TO SUBMITTING THE BID) KNOWLEDGEABLE OF THE CONSTRUCTION REQUIREMENTS, RESTRICTIONS, METHODS, MEANS, AND GENERAL CONSIDERATIONS OF DOING CONSTRUCTION WORK ON AN ACTIVE AIRPORT AND THEIR DETAILED SCHEDULING OF WORK MUST BE PERFORMED WITHIN THE FRAMEWORK OF THESE NOTES AND THE SAFETY AND PHASING PLAN SHEETS. WHILE A CONSCIENTIOUS AND GOOD FAITH EFFORT HAS BEEN MADE TO INCLUDE ALL APPROPRIATE AND RELEVANT REQUIREMENTS IN THESE PLANS AND SPECIFICATIONS, THE CONTRACTOR, AS A CONSIDERATION OF THIS CONTRACT, SHALL NOT USE A LACK OF UNDERSTANDING OF THE COMPLEXITIES OF AIRPORT WORK AS A REASON TO CLAIM AGAINST THE KCAD FOR ADDITIONAL TIME AND/OR COMPENSATION.
2. THE GENERAL REQUIREMENTS PRESENTED IN THESE NOTES ARE SUPPLEMENTARY TO THE SPECIFICATIONS. PARTICULAR ATTENTION IS DIRECTED TO THE TECHNICAL SPECIFICATIONS AND FAA ADVISORY CIRCULAR 150/5370-2G, OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION (OR MOST CURRENT VERSION). THE CONTRACTOR IS ADVISED THAT CERTAIN RULES AND RESTRICTIONS, AS CONTAINED IN THIS ADVISORY CIRCULAR AND AUGMENTED BY THESE PLANS AND SPECIFICATIONS, WILL APPLY TO THE WORK.
3. THE CONTRACTOR SHALL BECOME FAMILIAR WITH ALL REQUIREMENTS APPLICABLE TO AIRPORT CONSTRUCTION, PERFORM ALL WORK IN ACCORDANCE WITH THE SAFETY REQUIREMENTS OF FAA ADVISORY CIRCULAR 150/5370-2G, OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION (OR MOST CURRENT VERSION) AND THE MINIMUM REQUIREMENTS IDENTIFIED IN THE PLANS, AND COOPERATE WITH THE ENGINEER IN MAINTAINING A SAFE CONSTRUCTION SITE THAT IS COMPATIBLE WITH AIRCRAFT AND AIRPORT OPERATIONS. THE CONTRACTOR SHALL CONTINUOUSLY MONITOR ALL REQUIREMENTS AND ACTIVITIES FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS AND FAA ADVISORY CIRCULAR 150/5370-2G (OR MOST CURRENT VERSION).
4. THE CONTRACTOR SHALL COMPLY WITH ALL AIRPORT RULES AND REGULATIONS, THE APPROVED SAFETY PLAN COMPLIANCE DOCUMENT (SPCD), THE PROVISIONS OF FAA ADVISORY CIRCULAR 150/5370-2G (OR MOST CURRENT VERSION), THE OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) AND ALL FEDERAL, STATE, AND LOCAL SAFETY REGULATIONS.
5. THE KCAD SHALL AT ALL TIMES HAVE JURISDICTION OVER THE SAFETY OF AIR TRAFFIC DURING THE CONSTRUCTION SEQUENCE. WHENEVER THE SAFETY OF AIR TRAFFIC IS CONCERNED DURING CONSTRUCTION, THE KCAD'S DECISION AS TO METHODS, PROCEDURES, AND MEASURES USED SHALL BE FINAL AND ALL CONTRACTORS PERFORMING WORK MUST BE GOVERNED BY SUCH DECISIONS.
6. THE KCAD HAS THE RIGHT TO STOP WORK IN THE EVENT THE CONTRACTOR VIOLATES AIRPORT RULES AND REGULATIONS, THE APPROVED SAFETY PLAN, OR THE PROVISIONS OF AN FAA ADVISORY CIRCULAR AND TO DELAY FURTHER WORK UNTIL THE CONTRACTOR TAKES CORRECTIVE ACTION TO PREVENT FUTURE VIOLATIONS. VIOLATIONS OF FAA REGULATIONS MAY SUBJECT CONTRACTOR TO REMOVAL FROM THE PROJECT SITE AND CANCELLATION OF THE CONTRACT. CONTRACTOR SHALL ALSO REIMBURSE THE KCAD FOR THE COST OF ANY FINES, CIVIL ACTION, OR LEGAL COSTS ASSOCIATED WITH HIS VIOLATION OF FEDERAL LAW.
7. ANY EMPLOYEE OF THE CONTRACTOR OR ITS SUBCONTRACTOR(S) THAT VIOLATES THE RULES OF THE AIRPORT, THE FAA, AND THE APPROVED SAFETY PLAN COMPLIANCE DOCUMENT (SPCD) IS SUBJECT TO IMMEDIATE (AND POSSIBLY PERMANENT) REMOVAL FROM THE JOB SITE.
8. CONTRACTOR SHALL BE RESPONSIBLE TO COOPERATE WITH ANY INVESTIGATION OF AN AIRFIELD INCIDENT, ACCIDENT, OR AOA VIOLATION BY THE KCAD OR OTHER LAWFUL AUTHORITY AND TO PROVIDE THE NAME OF ANY PERSON INVOLVED IN, OR WITNESS TO, AN ACCIDENT OR SERIOUS INCIDENT ON THE JOB SITE RELATED TO CONSTRUCTION ACTIVITY, TO INCLUDE VEHICULAR AND PEDESTRIAN DEVIATIONS OR INCURSIONS OF ANY NATURE.
9. THE CONTRACTOR SHALL SUBMIT A SAFETY PLAN COMPLIANCE DOCUMENT (SPCD) TO THE KCAD WITHIN 10 CALENDAR DAYS OF THE DATE OF WRITTEN NOTICE TO PROCEED (NTP). THE SPCD SHALL OUTLINE HOW THE CONTRACTOR INTENDS TO COMPLY WITH ALL SAFETY CONSIDERATIONS OF FAA ADVISORY CIRCULAR 150/5370-2G (OR MOST CURRENT VERSION) AND REFLECTS THE ACTUAL WORK AREAS, ACCESS POINTS, HAUL ROUTES AND BARRICADE LOCATIONS. THE SPCD MUST BE APPROVED BY THE KCAD PRIOR TO CONTRACTOR MOBILIZATION. THE SAFETY PLAN SHALL INCLUDE THE FOLLOWING FOR EACH MAJOR PHASE OF CONSTRUCTION:
   A. PROPOSED ACCESS POINTS, STAGING AREAS, MATERIAL STORAGE/STOCKPILE AREAS, AND HAUL ROUTES;
   B. LOCATION AND TYPE OF BARRICADES AND OTHER TRAFFIC CONTROL DEVICES TO BE USED;
   C. CONSTRUCTION WORK ZONES CLEARLY DELINEATED, TO INCLUDE ALL MEASURES TO MINIMIZE THE POSSIBILITY OF CONTRACTOR EQUIPMENT AND/OR WORKERS ACCIDENTALLY ENTERING THE ACTIVE SAFETY AREAS;
   D. THE METHODS BY WHICH CONTRACTOR WILL MAINTAIN COMMUNICATIONS WITH AIR TRAFFIC AND AIRPORT OPERATIONS; AND
   E. EMERGENCY CONTACT AVAILABLE ON A 24-HOURS BASIS FOR THE PURPOSE OF MAINTAINING TRAFFIC CONTROL LIGHTING AND BARRICADES.
10. THE SAFETY PLAN COMPLIANCE DOCUMENT (SPCD) SHALL BE CONTINUOUSLY UPDATED THROUGHOUT CONSTRUCTION AS REQUIRED BY CHANGES IN THE CONTRACTOR'S OPERATIONS OR PHASING. ALL UPDATES TO THE SPCD SHALL BE APPROVED BY THE KCAD AND THE ENGINEER.
11. WITHIN 10 CALENDAR DAYS OF THE DATE OF THE KCAD'S WRITTEN NTP, THE CONTRACTOR SHALL PREPARE A QUALITY CONTROL PLAN IN ACCORDANCE WITH THE SPECIFICATION C-100, CONTRACTOR QUALITY CONTROL PROGRAM (CQCP) AND GENERAL PROVISIONS, SECTION 00800.01, PART 1. CONTRACTOR SHALL PRESENT AND BE PREPARED TO DISCUSS THEIR UNDERSTANDING OF THE QUALITY CONTROL REQUIREMENTS AT THE PRE-CONSTRUCTION MEETING.
12. WITHIN 10 CALENDAR DAYS OF THE DATE OF THE KCAD'S WRITTEN NTP, THE CONTRACTOR SHALL SUBMIT A DETAILED CONSTRUCTION SCHEDULE REFLECTING WORK ACTIVITIES AND TAXIWAY CLOSURES. THE SCHEDULE MUST BE APPROVED BY THE ENGINEER AND THE KCAD PRIOR TO START OF WORK. IF SCHEDULE REVISIONS ARE REQUIRED DURING CONSTRUCTION, AT LEAST 72 HOURS ADVANCE NOTICE TO THE ENGINEER WILL BE REQUIRED FOR THE KCAD APPROVAL.
13. WITHIN 10 CALENDAR DAYS OF THE DATE OF THE KCAD'S WRITTEN NTP, THE CONTRACTOR SHALL SUBMIT A PROJECT SPECIFIC STORMWATER POLLUTION PREVENTION PLAN (SWPPP) BASED ON THE CITY OF KANSAS CITY'S STANDARD SWPPP. THE CONTRACTOR SHALL COORDINATE WITH THE KCAD AND THE ENGINEER TO COMPLETE THE SWPPP.

COORDINATION

14. A PRE-BID CONFERENCE WILL BE HELD AT KANSAS CITY INTERNATIONAL (MCI) AT LEAST 10 DAYS PRIOR TO THE BID OPENING IN ORDER TO PROVIDE CONTRACTORS AND MATERIAL SUPPLIERS THE OPPORTUNITY TO ASK PROJECT SPECIFIC QUESTIONS.
15. AFTER THE BID OPENING AND SELECTION OF THE CONTRACTOR, A PRE-CONSTRUCTION CONFERENCE WILL BE SCHEDULED IN ORDER TO DISCUSS OPERATIONAL SAFETY, PHASING, TESTING, QUALITY CONTROL/QUALITY ACCEPTANCE, LABOR REQUIREMENTS, ENVIRONMENTAL FACTORS, AND POTENTIAL ISSUES THAT COULD ARISE DURING CONSTRUCTION. THE MEETING WILL BE SCHEDULED WITHIN 10 DAYS OF THE CONTRACT BEING AWARDED.
16. WEEKLY PROGRESS MEETINGS WITH THE CONTRACTOR, SUBCONTRACTOR(S), ENGINEER, AND KCAD OPERATIONS WILL OCCUR THROUGHOUT THE DURATION OF THE PROJECT UNTIL SUBSTANTIAL COMPLETION. THE DATE, TIME, AND LOCATION WILL BE DETERMINED AT THE PRE-CONSTRUCTION MEETING. CONTRACTOR SHALL DEVELOP AN AGENDA FOR (AND SUBMIT TWO CALENDAR DAYS IN ADVANCE OF EACH MEETING) AND CONDUCT EACH MEETING ACCORDING TO THE GUIDELINES SPECIFIED BY THE KCAD. THESE MEETINGS WILL ADDRESS WEEKLY CONSTRUCTION ISSUES, ADMINISTRATIVE ISSUES SUCH AS CHANGE ORDERS AND/OR PAY ESTIMATES, AND ANY COORDINATION REQUIRED WITH THE FAA ATO AND OR THE KCAD IN RELATION TO OPENING/CLOSING SECTIONS OF PAVEMENT AND ISSUING NOTICE TO AIR MISSIONS (NOTAMS). AT EACH MEETING THE CONTRACTOR SHALL PRESENT A 2 WEEK ROLLING SCHEDULE FOR DAILY WORK AND CLOSURE OF THE AIRFIELD PAVEMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE TO RECORD THE MINUTES OF EACH MEETING AND DISSEMINATE TO ALL MEETING ATTENDEES.

PHASING

17. THE TAXIWAY E AND TAXIWAY J REHABILITATION PROJECT INCLUDES A BASE BID IN 2023. THE LIMITS OF THE PROJECT ARE SHOWN ON SHEET G03. PHASING PLAN FOR THE PROJECT IS SHOWN ON SHEET G04.
18. THE SAFETY AND PHASING PLANS ON SHEETS G05-G07 DEPICT THE AREAS LOCATED ON THE AIRFIELD THAT WILL BE AFFECTED BY CONSTRUCTION ACTIVITIES AS WELL AS DETAILS FOR THE METHODS OF MAINTENANCE OF TRAFFIC AND SAFETY. COORDINATION WITH KCAD OPERATIONS IS REQUIRED FOR ANY CLOSURE OF TAXIWAYS WITH 48 HOURS NOTICE.

CONTRACTOR ACCESS

19. THE CONTRACTOR'S STAGING AREAS WILL BE LOCATED AS INDICATED ON SHEET G03. THE CONTRACTOR SHALL ACCESS THE STAGING AREA AND SITE VIA I-29, VIA MEXICO CITY AVENUE AND PARIS STREET. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE SECURE ACCESS TO THE SITE WITH THE KCAD.
20. ONLY THE CONTRACTOR'S CONSTRUCTION VEHICLES WILL BE ALLOWED IN THE AOA. ALL EMPLOYEE AND PRIVATE VEHICLES SHALL BE CONFINED TO THE STAGING AREA. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE VEHICLES THAT ARE AUTHORIZED TO OPERATE ON THE PROJECT SITE WITHIN THE AOA. THESE VEHICLES WILL BE IDENTIFIED WITH THE CONTRACTOR'S NAME ON THE SIDE OF THE VEHICLE AND SHALL BE EQUIPPED WITH A FLASHING AMBER WARNING LIGHT. THESE VEHICLES MUST ALSO UNDERGO AN OPERATIONS AND SECURITY CHECK AND SHALL DISPLAY AT ALL TIMES AN AIRPORT ISSUED AOA ACCESS STICKER ON THE WINDSHIELD.
21. THE CONTRACTOR SHALL IDENTIFY EMPLOYEES AND SUBCONTRACTOR EMPLOYEES WHICH REQUIRE UNESCORTED ACCESS. THESE INDIVIDUALS MUST COMPLETE AN AIRPORT-PROVIDED DRIVERS TRAINING COURSE IN ORDER TO BE ISSUED AN AIRPORT IDENTITY BADGE. THE AIRPORT-ISSUED IDENTITY BADGE MUST BE WORN BY THE INDIVIDUAL AND BE VISIBLE AT ALL TIMES WHILE IN THE AOA. IF A BADGED EMPLOYEE LEAVES THE EMPLOYMENT OF THE CONTRACTOR, THE BADGE MUST BE RETURNED TO THE AIRPORT ID OFFICE. ALL AIRPORT ACCESS MEDIA, INCLUDING IDENTIFICATION BADGES, ARE TO BE RETURNED TO THE AIRPORT ID OFFICE UPON PROJECT COMPLETION.
22. ALL NON-BADGED DRIVERS AND ALL NON-AOA ACCESS STICKER IDENTIFIED VEHICLES WILL BE ESCORTED AT ALL TIMES BY PROPERLY ID BADGED PERSONNEL, IN VEHICLES PROPERLY IDENTIFIED, INSPECTED, AND GRANTED ACCESS INTO THE AOA. A MAXIMUM OF TWO VEHICLES MAY BE ESCORTED AT ONE TIME, BY A PROPERLY IDENTIFIED AND BADGED PERSONNEL AND VEHICLE. ALL NON-BADGED CONTRACTOR PERSONNEL SHALL BE UNDER THE DIRECT SUPERVISION OF AN AIRPORT BADGED CONTRACTOR EMPLOYEE, WHOM HAS RESPONSIBLE CHARGE OF THE WORK CREW.
23. ALL CONTRACTOR EMPLOYEES REQUIRED TO MAINTAIN CONTACT WITH THE AIR TRAFFIC CONTROL TOWER (ATCT) MUST FIRST COMPLETE AN AIRPORT-PROVIDED MOVEMENT AREA, DRIVERS TRAINING COURSE IN ORDER TO BE ISSUED AN AIRPORT IDENTITY BADGE.
24. DRIVERS WANTING TO ENTER A RUNWAY OR TAXIWAY (MOVEMENT AREAS) MUST FIRST GET PERMISSION FROM THE AIR TRAFFIC CONTROL TOWER (ATCT). CONTRACTOR AND SUBCONTRACTOR EMPLOYEES WITH ESCORT CREDENTIALS ARE REQUIRED TO MAINTAIN COMMUNICATIONS WITH AIR TRAFFIC WHILE INSIDE THE AOA VIA TWO-WAY RADIO. THE CONTRACTOR WILL FURNISH AND MAINTAIN A HANDHELD RADIO FOR EACH CROSSING GUARD, EACH GATE GUARD, EACH FOREMAN ON THE AOA, AND THE PROJECT SUPERINTENDENT, IN ORDER TO MONITOR AIR TRAFFIC FREQUENCIES AND KEEP A HEIGHTENED SENSE OF AWARENESS IN AREAS ADJACENT TO PROJECT LIMITS THAT ARE OPEN TO AIR TRAFFIC. ADDITIONAL PERSONNEL MAY BE REQUIRED TO MONITOR AIR TRAFFIC RADIO FREQUENCIES AS NECESSARY. ALL CONTRACTOR FURNISHED RADIOS WILL BE CAPABLE OF OPERATING ON THE FOLLOWING FREQUENCY: 121.80 MHZ.

WILDLIFE MANAGEMENT

25. CONTRACTOR OPERATIONS DURING CONSTRUCTION CAN DIRECTLY OR INDIRECTLY CREATE WILDLIFE HAZARDS AT AIRPORTS. CONTRACTOR PERSONNEL GENERATION OF TRASH IS CONSIDERED AN ACTIVITY THAT CREATES A WILDLIFE HAZARD. FOOD SCRAPS MUST BE COLLECTED FROM CONSTRUCTION PERSONNEL AND DISPOSED OF APPROPRIATELY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ARRANGEMENTS FOR TRASH REMOVAL FROM THE PROJECT SITE AS WELL AS THE CONTRACTOR'S STAGING AREA. TRASH MUST BE REMOVED FROM THE SITE ON A WEEKLY BASIS AS A MINIMUM REQUIREMENT. SHOULD THIS PRACTICE PROVE TO BE INADEQUATE, THE CONTRACTOR SHALL INCREASE THE FREQUENCY OF TRASH REMOVAL.
26. STANDING WATER IS A POTENTIAL WILDLIFE HAZARD THAT CAN BE CREATED FROM CONSTRUCTION ACTIVITY OR RAINFALL EVENTS. FOR ALL PHASES OF THE PROJECT, STANDING WATER WILL NOT BE ALLOWED TO STAND AFTER A RAIN EVENT FOR MORE THAN 48 HOURS. THE CONTRACTOR SHALL TAKE PRECAUTIONS AND HAVE READY, AT NO ADDITIONAL COST TO THE PROJECT, A PUMP TO REMOVE STANDING WATER FROM THE PROJECT AREA BY PUMPING TO THE NEAREST STORM WATER INLET.
27. TALL GRASS AND SEEDS REPRESENT ANOTHER WILDLIFE ATTRACTANT ON AIRFIELDS. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE STAGING AREA ALLOCATED, WHICH INCLUDES KEEPING THE AREA FREE FROM TALL STANDS OF GRASS. SEEDING OF THE PROJECT SITE ALSO REPRESENTS A CONSTRUCTION ACTIVITY THAT CAN ATTRACT WILDLIFE. NEW PLANTINGS SHALL NOT CONTAIN MILLET, RYEGRASS, AND OTHER LARGE SEED PRODUCING VARIETIES OR CLOVER. FOR SPECIFIC PROJECT SEEDING REQUIREMENTS REFER TO THE T-901 SPECIFICATION.
28. THE CONTRACTOR'S STAGING AREA IS ADJACENT TO THE AOA PERIMETER FENCE. THE CONTRACTOR SHALL INSPECT THE CONDITION OF THE AOA FENCE IN THE STAGING AREA ON A WEEKLY BASIS TO ENSURE THE FENCE HAS NOT BEEN COMPROMISED AT ANY LOCATION AFFORDING WILDLIFE THE OPPORTUNITY TO ENTER THE AOA. IN THE EVENT OF A WILDLIFE ENCOUNTER (I.E. DOG, FOX, COYOTE, ETC.) WITHIN THE AOA, THE CONTRACTOR SHALL IMMEDIATELY CONTACT AIRPORT OPERATIONS.

FOREIGN OBJECT DEBRIS (FOD) MANAGEMENT

29. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT CONSTRUCTION ACTIVITIES DO NOT IMPACT AIRCRAFT OPERATIONS WHICH INCLUDES MAINTAINING A CLEAN PROJECT SITE FREE FROM THE THREAT OF FOD. THE CONTRACTOR AND ITS EMPLOYEES WILL BE HELD RESPONSIBLE FOR MAINTAINING THE PROJECT AREA AND KEEPING IT FREE FROM FOD WHETHER IT IS GENERATED FROM THE PROJECT SITE OR OTHER AIRFIELD AREAS.
30. EVERYONE INSIDE THE AOA IS RESPONSIBLE FOR THE REMOVAL OF FOD REGARDLESS OF ITS ORIGIN. IN PROJECT AREAS THAT REQUIRE THE TEMPORARY CLOSURE OF AIRFIELD PAVEMENT, AIRPORT PERSONNEL WILL HAVE THE FINAL WORD ON THE ACCEPTANCE OF CLEANED CONSTRUCTION AREAS PRIOR TO OPENING THE AREA FOR AIRCRAFT OPERATIONS. AT A MINIMUM, THE FINAL 30 MINUTES PRIOR TO THE TIME AIRFIELD PAVEMENT IS TO BE OPENED SHALL BE USED FOR CLEANUP AND TO INSPECT THE AREA FOR FOD. IT IS ALSO THE RESPONSIBILITY OF THE CONTRACTOR TO REGULARLY CLEAN ACTIVE TAXIWAYS USED AS TEMPORARY DETOUR ROADWAYS THROUGHOUT THE DURATION OF THE PROJECT AND AT THE DISCRETION OF AIRPORT OPERATIONS. THE CONTRACTOR WILL USE A STREET SWEEPER OR VACUUM TRUCK TO CLEAN ACTIVE AIRFIELD PAVEMENT ON A REGULAR BASIS AND PRIOR TO OPENING AREAS TO AIR TRAFFIC.

HAZARDOUS MATERIALS (HAZMAT) MANAGEMENT

31. THE REQUIREMENTS OF THE HAZARDOUS WASTE REGULATIONS ESTABLISHED BY THE USEPA ARE PRESENTED IN 40 CFR 261 THROUGH 270. WASTES THAT ARE HAZARDOUS AND REGULATED UNDER RCRA ARE CLASSIFIED AS EITHER LISTED OR CHARACTERISTIC WASTES.
32. LISTED WASTES ARE CONSIDERED TO BE HAZARDOUS REGARDLESS OF THE CONCENTRATIONS OF HAZARDOUS CHEMICALS CONTAINED IN THE WASTE. PLEASE REFER TO 40 CFR 261.31 THROUGH 261.33 FOR SPECIFIC INFORMATION REGARDING LISTED WASTES. IF A WASTE IS NOT LISTED THE GENERATOR SHOULD DETERMINE IF A WASTE EXHIBITS ANY OF THE CHARACTERISTICS OF A HAZARDOUS WASTE: IGNITABILITY, CORROSIVITY, REACTIVITY, AND TOXICITY.
33. THE CONTRACTOR SHALL SUBMIT A PLAN THAT ADDRESSES THE MANAGEMENT OF HAZARDOUS AND NON-HAZARDOUS WASTE IN ACCORDANCE WITH FAA AC 150/5320-15A (OR MOST CURRENT VERSION), MANAGEMENT OF AIRPORT INDUSTRIAL WASTE AND INCLUDE IT IN ITS SPCD. THE PLAN MUST ADDRESS SUCH ISSUES AS FUEL DELIVERIES, SPILL RECOVERY PROCEDURES, THE AVAILABILITY OF MATERIAL SAFETY DATA SHEETS (MSDS), AND OTHER CONSIDERATIONS.

NOTICE OF CONSTRUCTION ACTIVITIES

34. UPON AWARD OF THE PROJECT, THE CONTRACTOR WILL PROVIDE ALL APPROPRIATE CONTACT INFORMATION FOR ITS STAFF AND SUBCONTRACTORS IN ITS SPCD SUCH AS PROJECT MANAGERS, PROJECT SUPERINTENDENTS, AND SAFETY MANAGERS. SHOULD ANY PERSONNEL CHANGE OCCUR DURING THE PROJECT, IT IS THE RESPONSIBILITY OF THAT ORGANIZATION TO PROVIDE REVISED CONTACT INFORMATION.
35. THE NOTICE TO AIR MISSIONS (NOTAM) SYSTEM PROVIDES ESSENTIAL INFORMATION TO PERSONNEL CONCERNED WITH FLIGHT AND AIRPORT OPERATIONS. NOTAMS PROVIDE TIMELY INFORMATION ON UNANTICIPATED OR TEMPORARY CHANGES TO COMPONENTS OF OR HAZARDS IN THE NATIONAL AIRSPACE SYSTEM (NAS) WHICH INCLUDES THE CLOSURE OF RUNWAYS AND TAXIWAYS. DURING VARIOUS PHASES OF CONSTRUCTION IT WILL BE NECESSARY TO CLOSE RUNWAY AND TAXIWAY PAVEMENT WHICH WILL REQUIRE A NOTAM TO BE ISSUED. A MINIMUM OF 72 HOURS WRITTEN NOTICE (WEEKENDS EXCLUDED) OF REQUESTED CLOSING SHALL BE DIRECTED TO THE RESIDENT PROJECT REPRESENTATIVE (RPR) WHO WILL THEN COORDINATE THE REQUEST WITH THE KANSAS CITY INTERNATIONAL AIRPORT OPERATIONS. ONLY THE FAA MAY ISSUE OR CANCEL NOTAMS ON SHUTDOWN OR IRREGULAR OPERATION OF FAA OWNED FACILITIES.
36. ANY PERSON PROPOSING CONSTRUCTION OR ALTERATION OF OBJECTS THAT AFFECT NAVIGABLE AIRSPACE MUST NOTIFY THE FAA. THIS INCLUDES CONSTRUCTION EQUIPMENT AND PROPOSED PARKING AREAS FOR THIS EQUIPMENT (I.E. CRANES, GRADERS, ETC.) ON AIRPORTS. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH THE APPROPRIATE EQUIPMENT AND BATCH PLANT HEIGHTS ANTICIPATED TO BE USED DURING THE PROJECT.
37. THE PHASED CONSTRUCTION APPROACH ASSOCIATED WITH THIS PROJECT CREATES THE POTENTIAL TO IMPACT EMERGENCY ACCESS ROUTES ON THE AIRFIELD. THE CONTRACTOR SHALL PROVIDE A WRITTEN NOTICE OF CHANGES WHICH WILL IMPACT THE ARFF EMERGENCY ROUTES. THESE NOTICES WILL BE DIRECTED THROUGH THE RESIDENT PROJECT REPRESENTATIVE (RPR) WHO WILL THEN COORDINATE THE REQUEST WITH THE KANSAS CITY INTERNATIONAL AIRPORT OPERATIONS.

INSPECTION REQUIREMENTS

38. A RESIDENT PROJECT REPRESENTATIVE (RPR) WILL BE ON SITE FOR THE DURATION OF THE TAXIWAY E AND TAXIWAY J REHABILITATION PROJECT TO PROVIDE CONSTRUCTION OVERSIGHT AND INSPECTION SERVICES FOR THE KCAD. THE RPR WILL BE RESPONSIBLE FOR ENSURING THAT THE PROJECT IS CONSTRUCTED IN CONFORMANCE WITH THE CONTRACT, PLANS, AND SPECIFICATIONS. SHOULD ANY DEVIATIONS FROM THE PLANS AND SPECIFICATIONS BE OBSERVED, THE CONTRACTOR WILL BE REQUIRED TO IMMEDIATELY CORRECT THE DEVIATIONS AS INSTRUCTED BY THE RPR.
39. THE RPR WILL ALSO PROVIDE QUALITY ASSURANCE/ACCEPTANCE TESTING FOR THE PROJECT THROUGH A CONTRACT WITH A MATERIALS TESTING CONSULTANT.
40. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING QUALITY CONTROL TESTING. THE CONTRACTOR WILL IDENTIFY A CONSTRUCTION SAFETY OFFICER IN ITS SPCD AS WELL AS A SINGLE POINT OF CONTACT FOR EACH SUBCONTRACTOR INVOLVED ON THE PROJECT. THE CONTRACTOR WILL ALSO OUTLINE IN THE SPCD ITS SAFETY POLICY AND INTERNAL INSPECTION REQUIREMENTS TO ENSURE AIRFIELD SAFETY COMPLIANCE.
41. END OF PHASE INSPECTIONS WILL BE CONDUCTED BY THE RPR, CONTRACTOR, AND KANSAS CITY INTERNATIONAL AIRPORT OPERATIONS PRIOR TO OPENING AIRFIELD PAVEMENT TO AIR TRAFFIC. IN PROJECT AREAS THAT REQUIRE THE TEMPORARY CLOSURE OF AIRFIELD PAVEMENT, AIRPORT OPERATIONS PERSONNEL WILL HAVE THE FINAL WORD ON THE ACCEPTANCE OF CLEANED CONSTRUCTION AREAS PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS.
42. A FINAL INSPECTION WILL ALSO BE CONDUCTED BY THE RPR, CONTRACTOR, KANSAS CITY AIRPORT OPERATIONS, AND THE SPONSOR TO CONFIRM THAT THE PROJECT HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT, PLANS, AND SPECIFICATIONS.

UNDERGROUND UTILITIES

43. CONTRACTOR SHALL PROVIDE A MINIMUM NOTICE OF 2 WORKING DAYS TO THE KCAD, FAA, AIRPORT OPERATIONS, AND UTILITY COMPANIES PRIOR TO PROCEEDING ON ANY EXCAVATION ACTIVITY. THE CONTRACTOR SHALL SUBMIT AN AVIATION DEPARTMENT EXCAVATION PERMIT TO THE KCAD, AS NECESSARY.
44. THE LOCATIONS OF UNDERGROUND UTILITIES AS INDICATED ON THE PLANS HAVE BEEN OBTAINED FROM EXISTING RECORDS. NEITHER THE KCAD NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY WHATSOEVER IN RESPECT TO THE ACCURACY, COMPLETENESS, OR SUFFICIENCY OF THE INFORMATION. THERE IS NO GUARANTEE, EITHER EXPRESSED OR IMPLIED, THAT THE LOCATIONS, SIZE AND TYPE OF MATERIAL OF EXISTING UNDERGROUND UTILITIES INDICATED ARE REPRESENTATIVE OF THOSE TO BE ENCOUNTERED IN THE CONSTRUCTION.
45. EXTREME CAUTION SHALL BE USED WHEN WORKING NEAR EXISTING LIGHT FIXTURES, UNDERGROUND ELECTRICAL DUCTS, UNDERGROUND ELECTRICAL CABLE AND ANY OTHER EXISTING AIRPORT FIXTURES. SHOULD DAMAGE OCCUR TO ANY OF THESE ITEMS, THEY WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE ENGINEER AND THE KCAD.
46. ANY FAA EQUIPMENT OR CABLE THAT IS DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AS APPROVED BY FAA TECHNICAL OPERATIONS. ALL SPLICES/ CABLE REPAIRS SHALL MEET FAA SPECIFICATIONS AND NATIONAL ORDERS AND BE ACCOMPLISHED TO THE SATISFACTION OF FAA TECHNICAL OPERATIONS. ALL CABLE WORK SHALL BE PERFORMED BY QUALIFIED WORKMEN REGULARLY ENGAGED IN THE TYPE OF WORK. IF EXISTING CABLE CANNOT BE REPAIRED TO THE SATISFACTION OF FAA TECHNICAL OPERATIONS, NEW CABLE OF LIKE KIND SHALL BE INSTALLED TO THE SATISFACTION OF FAA TECHNICAL OPERATIONS AT THE CONTRACTOR'S EXPENSE.
47. BASIC UTILITIES ARE AVAILABLE IN THE VICINITY OF THE CONTRACTOR'S STAGING AREA. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONNECTIONS TO EXISTING UTILITIES AND FOR NEGOTIATING THE METER RATES AND FEES WITH THE KCAD.

PENALTIES

48. PENALTIES FOR NONCOMPLIANCE WITH AIRPORT RULES, REGULATIONS, AND SAFETY PLANS SHALL BE ASSESSED BY THE KCAD.

SPECIAL CONDITIONS

49. AIRPORT OPERATIONS TAKE PRECEDENCE OVER ALL WORK, ESPECIALLY IF A QUESTION OF SAFETY IS INVOLVED. SPECIAL CONDITIONS SUCH AS LOW VISIBILITY, SNOW REMOVAL, AIRCRAFT IN DISTRESS, AIRCRAFT ACCIDENT, SECURITY BREACH, OR WORK BEING COMPLETED BY OTHERS MAY REQUIRE THE RESCHEDULING OF TAXIWAY E AND TAXIWAY J REHABILITATION PROJECT WORK TO ACCOMPLISH AIR SAFETY.

RUNWAY AND TAXIWAY VISUAL AIDS

50. THE PROJECT WILL INCLUDE THE REMOVAL OF RUNWAY AND TAXIWAY PAVEMENT MARKINGS, LIGHTING, AND SIGNS, WHICH WILL BE REPLACED AS PART OF THE PROJECT. AS PART OF THE WORK INCLUDED IN THE PHASING OF THE PROJECT, SOME TAXIWAY PAVEMENT MARKINGS AND SIGNS WILL BE REMOVED AND THEN REPLACED. REFERENCE PLAN SHEETS CM01-CM09 FOR MARKING PLANS AND DETAILS.

MARKING AND SIGNS FOR ACCESS ROUTES

51. ANY APPLICABLE PAVEMENT MARKINGS AND SIGNS FOR CONSTRUCTION PERSONNEL SHALL CONFORM TO AC 150/5340-18G (OR MOST CURRENT VERSION) AND, TO THE EXTENT PRACTICABLE, WITH THE FEDERAL HIGHWAY ADMINISTRATION MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND/OR STATE HIGHWAY SPECIFICATIONS.

HAZARD MARKING AND LIGHTING

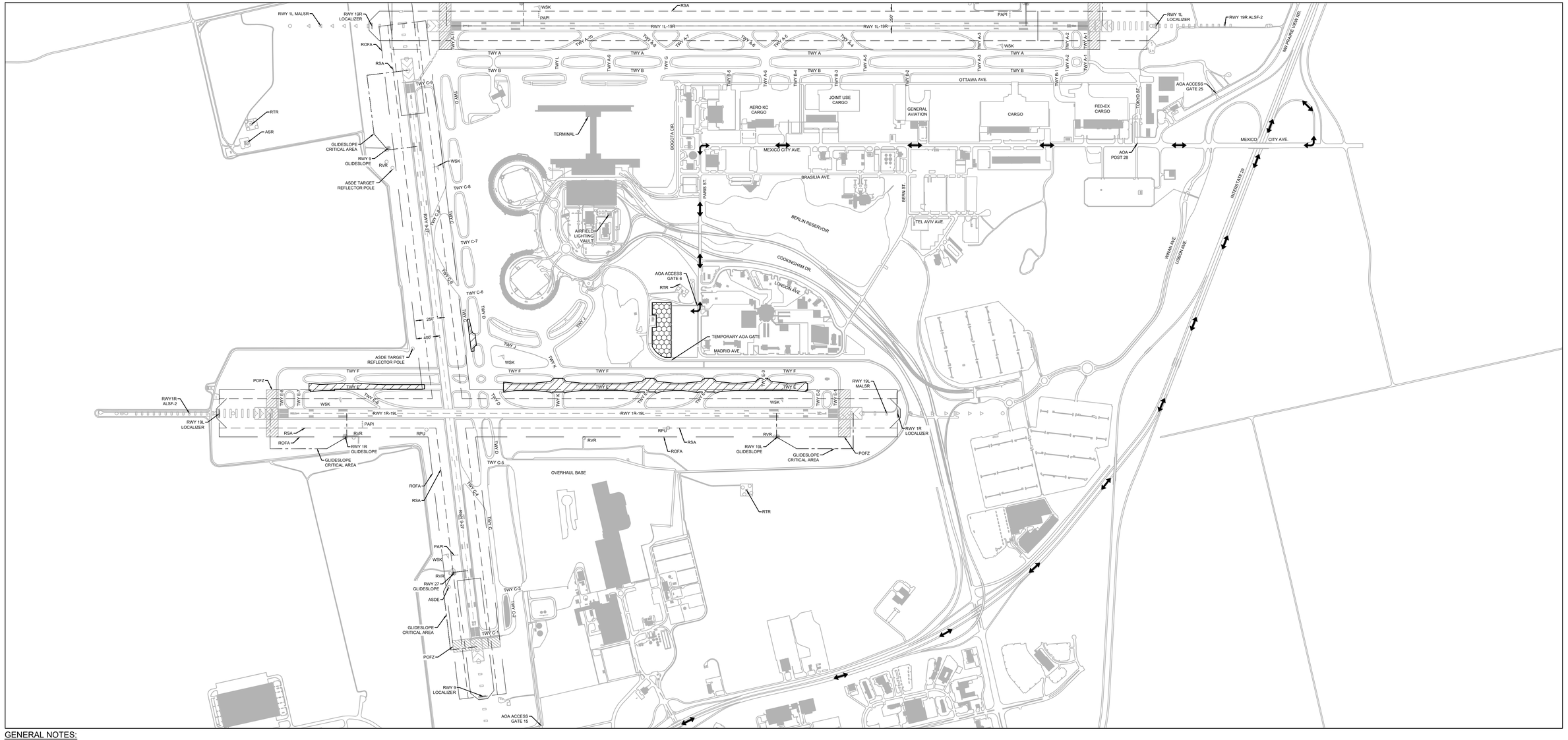
52. TRAFFIC CONTROL METHODS WILL BE IMPLEMENTED THROUGHOUT THE PROJECT BASED ON THE PHASING PLANS ON PLAN SHEETS G05-G07.
53. PRIOR TO THE START OF CONSTRUCTION ACTIVITY, THE CONTRACTOR SHALL PROVIDE THE KCAD THE CONTACT INFORMATION OF THE INDIVIDUAL(S) THAT WILL BE AVAILABLE AT ALL TIMES FOR EMERGENCY MAINTENANCE OF AIRPORT HAZARD LIGHTING AND BARRICADES.

PROTECTION OF RUNWAY AND TAXIWAYS SAFETY AREAS

54. OPEN TRENCHES AND EXCAVATIONS ARE NOT PERMITTED WITHIN A SAFETY AREA WHILE SUCH RUNWAY OR TAXIWAY IS OPEN TO OPERATIONS. IF A RUNWAY OR TAXIWAY MUST BE OPENED PRIOR TO EXCAVATIONS BEING BACKFILLED, THEY SHALL BE COVERED AND MARKED APPROPRIATELY WITH SPECIFIED LOW PROFILE BARRICADES.
55. PRIOR TO OPENING A RUNWAY OR TAXIWAY, ALL SAFETY AREAS MUST BE GRADED TO SATISFY STANDARDS AND HAVE NO SURFACE DROP OFFS GREATER THAN 3”.

OTHER LIMITATIONS ON CONSTRUCTION

56. CONTRACTOR SHALL SUBMIT HEIGHT OF CONSTRUCTION EQUIPMENT AND MATERIAL STOCKPILES TO THE KCAD WITHIN 5 CALENDAR DAYS OF CONTRACT AWARD. UNLESS OTHERWISE APPROVED IN WRITING BY THE KCAD, THE MAXIMUM ALLOWABLE HEIGHT OF CONSTRUCTION EQUIPMENT OPERATING IN THE AOA AND MATERIAL STOCKPILES IS 20 FEET. THE HEIGHT OF CONSTRUCTION EQUIPMENT AND MATERIAL STOCKPILES IS GOVERNED BY FAA ADVISORY CIRCULAR 150/5370-2G (OR MOST CURRENT VERSION).
57. CONTRACTOR SHALL NOTIFY THE KCAD 72 HOURS IN ADVANCE WHENEVER THEY INTEND TO USE A CRANE OR A BOOM TRUCK OR STOCKPILE MATERIAL TO A HEIGHT GREATER THAN 20 FEET.
58. CRANES AND



GENERAL NOTES:

1. THE CONTRACTOR'S STAGING AREA AND BATCH PLANT SITE WILL BE LOCATED AS INDICATED ON THIS SHEET. THE SITE WILL REQUIRE SIGNIFICANT SITE PREPARATION FOR USE. TEMPORARY FENCING, AGGREGATE PARKING AREAS, AND TEMPORARY BARRIERS FOR STOCKPILE CONTAINMENT ARE THE MINIMAL ITEMS THAT MAY BE REQUIRED. A SITE PLAN APPROVAL WILL BE REQUIRED. THIS SITE PREPARATION SHALL BE CONSIDERED INCIDENTAL TO ITEM C-105-1, MOBILIZATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE SECURE ACCESS TO THE SITE WITH THE KCAD.

2. THE CONTRACTOR SHALL ACCESS THE STAGING AREA AND SITE VIA I-29, MEXICO CITY AVENUE AND PARIS STREET. ALTERNATE ACCESS ROUTES TO THE STAGING AREA AND SITE SHALL REQUIRE APPROVAL BY THE KCAD.

3. THE CONTRACTOR WILL BE REQUIRED TO MAKE ARRANGEMENTS FOR HOOK-UPS WITH EACH SPECIFIC UTILITY AT THE STAGING AREA FOR THEIR USE. COST SHALL BE INCIDENTAL TO ITEM C-105-1, MOBILIZATION.

4. ONLY THE CONTRACTOR'S CONSTRUCTION VEHICLES WILL BE ALLOWED IN THE AOA. ALL EMPLOYEE AND PRIVATE VEHICLES SHALL BE CONFINED TO THE CONTRACTOR'S STAGING AREA.

5. THE CONTRACTOR SHALL ESCORT ALL VEHICLES OPERATING INSIDE THE AOA THAT DO NOT HAVE AOA ACCESS CREDENTIALS ISSUED BY THE AIRPORT.

6. AIRPORT SECURITY MUST BE MAINTAINED AT ALL TIMES BY USE OF THE AOA FENCE. ACCESS GATES INTO THE AOA MUST BE LOCKED AT ALL TIMES EXCEPT WHEN THE CONTRACTOR PROVIDES A GUARD AT THE GATES. TEMPORARY AOA GATES REQUIRED SHALL BE APPROVED BY TSA AND RESTORED TO ORIGINAL CONDITION AT THE COMPLETION OF THE PROJECT. REFERENCE SHEET G02 FOR DETAILS ON HAUL ROUTES AND CONTRACTOR GATE GUARD REQUIREMENTS. INSTALLATION AND REMOVAL OF TEMPORARY AOA GATES SHALL BE INCIDENTAL TO ITEM C-105-1, MOBILIZATION.

7. THE CONTRACTOR SHALL CLEAN AND REMOVE ALL EQUIPMENT AND LEFT OVER CONSTRUCTION MATERIALS FROM THE STAGING AREA AND BORROW SITE AT THE COMPLETION OF THE PROJECT. RESTORING THE STAGING AREA AND BORROW SITE TO ORIGINAL CONDITION SHALL BE INCIDENTAL TO ITEM C-105-1, MOBILIZATION AND SHALL REQUIRE FINAL APPROVAL OF THE KCAD AND RPR.

8. ONLY THE CONTRACTOR'S CONSTRUCTION VEHICLES WILL BE ALLOWED IN THE AOA. ALL EMPLOYEE AND PRIVATE VEHICLES SHALL BE CONFINED TO THE CONTRACTOR'S STAGING AREA.

9. THE CONTRACTOR SHALL ESCORT ALL VEHICLES OPERATING INSIDE THE AOA THAT DO NOT HAVE AOA ACCESS CREDENTIALS ISSUED BY THE AIRPORT.

10. MATERIAL DELIVERIES WILL NOT BE ALLOWED VIA COOKINGHAM DRIVE.

11. THE CONTRACTOR SHALL KEEP ON SITE A VACUUM TRUCK CAPABLE OF PICKING UP AND REMOVING DEBRIS, AS NEEDED. THE HAUL AND ACCESS ROUTES SHALL BE CONTINUOUSLY VACUUMED AND SWEPT TO MAINTAIN THE AREAS FREE OF ALL DUST, MUD, ROCKS, AND OTHER CONSTRUCTION DEBRIS WORK SHALL BE INCIDENTAL TO ITEM C-105-1, MOBILIZATION.

12. ALL EXISTING ROADS OR PAVEMENTS USED AS ACCESS/ HAUL ROUTES SHALL BE MAINTAINED AND IMPROVED AS REQUIRED. THE ROAD CONDITIONS WILL BE INSPECTED AND DOCUMENTED JOINTLY BY THE RPR AND THE CONTRACTOR PRIOR TO AND AT THE END OF THE PROJECT. THE CONDITION OF THESE ROADS AND PAVEMENTS SHALL BE EQUAL OR BETTER THAN AT THE START OF THE PROJECT AS DETERMINED BY THE RPR. THE CONTRACTOR HAS THE OPTION TO CONSTRUCT THEIR OWN HAUL ROUTES. THE CONTRACTOR MAY UTILIZE EXISTING MATERIAL FROM THE AIRPORT'S NW RUBBLE SITE FOR HAUL ROUTES OR STAGING AREA. THE COST TO RESTORE ACCESS ROADS TO THEIR ORIGINAL CONDITION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

13. THE STOCKPILING OF MATERIALS WILL ONLY BE PERMITTED WITHIN THE BOUNDARIES OF THE STAGING AREA AND SHALL NOT BE ALLOWED ON AIRFIELD PAVEMENT OR IN GRASS ISLAND. STOCKPILING OF MATERIALS SHALL NOT EXCEED 20 FEET IN HEIGHT. NO MATERIAL OR EQUIPMENT SHALL BE STORED OR STOCKPILED WITHIN 8 FEET OF AOA FENCES, PERMANENT OR TEMPORARY.

14. ALL CONCRETE AND ASPHALT REMOVAL SHALL BE LEGALLY DISPOSED OF BY THE CONTRACTOR TO AN OFF SITE LOCATION. HAULING OF PAVEMENT REMOVAL SHALL BE CONSIDERED INCIDENTAL TO PAY ITEMS OUTLINED IN SPECIFICATION P-101, PREPARATION/REMOVAL OF EXISTING PAVEMENTS.

15. CONTRACTOR SHALL REMAIN CLEAR OF ACTIVE RUNWAY SAFETY AREAS AND TAXIWAY OBJECT FREE AREAS UNLESS OTHERWISE INDICATED ON THE PROJECT PHASING PLANS G05-G07.

LEGEND:

- WORK AREA
- CONTRACTOR STAGING & BATCH PLANT SITE
- CONTRACTOR ACCESS ROUTE

STATE OF MISSOURI
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KCI

HNTB
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Kansas City, MO 64105
Licensee No. 001270

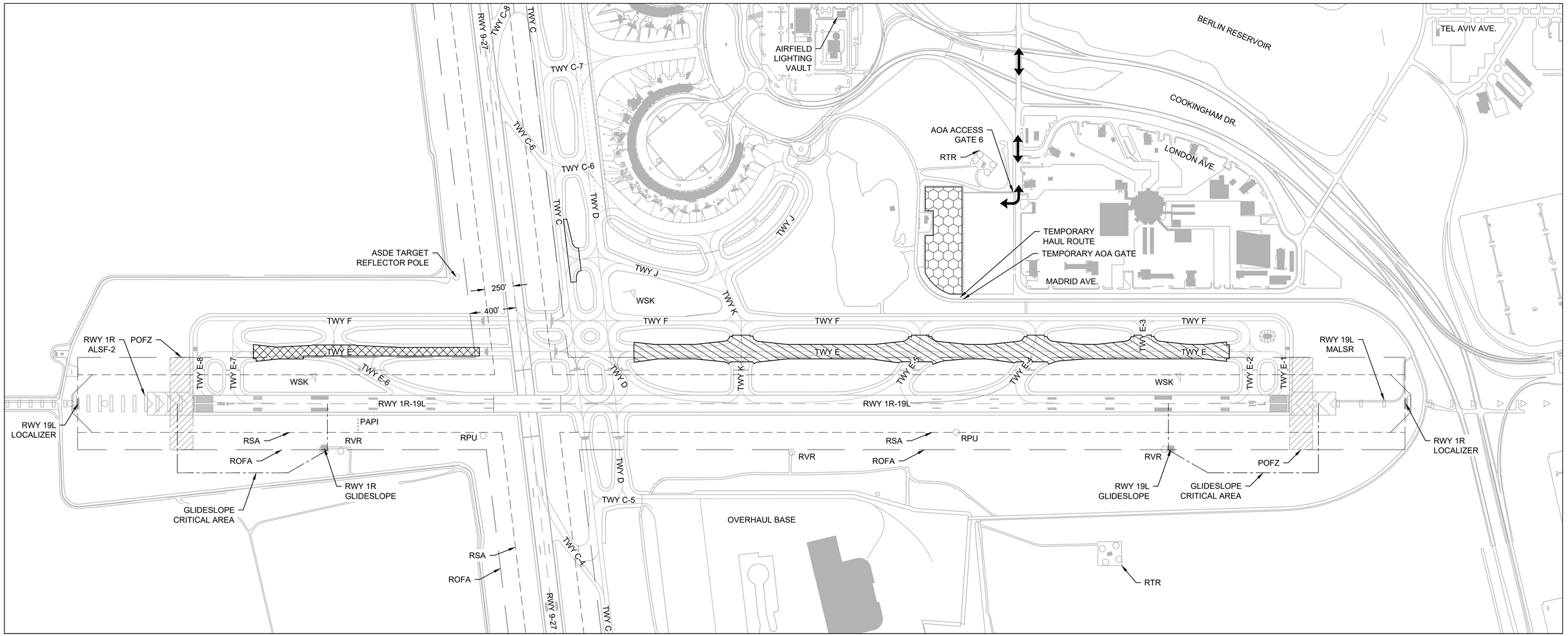
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

GENERAL AIRPORT SITE PLAN

Design: MMW	CAD File: 62230566G03.dwg	Aviation Project No.	62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	G03 4 of 104

CAD File: 62230566G03.dwg



GENERAL NOTES:

1. PHASE 1 MAY BEGIN FOLLOWING THE NOTICE TO PROCEED (NTP). PHASE 1 IS ANTICIPATED TO START IN THE LATE SPRING OF 2023 WITH A TOTAL OF 66 CALENDAR DAYS. PHASE 1 WORK SHALL ONLY INCLUDE WORK AREA A.
2. PHASE 2 MAY BEGIN FOLLOWING THE COMPLETION OF PHASE 1 WITH A TOTAL OF 44 CALENDAR DAYS. PHASE 2 SHALL ONLY INCLUDE WORK AREAS A AND B.
3. PHASE 3 MAY BEGIN FOLLOWING THE COMPLETION OF PHASE 2 WITH A TOTAL OF 45 CALENDAR DAYS. PHASE 3 SHALL ONLY INCLUDE WORK AREAS B AND C.
4. THE CONTRACTOR SHALL NOT MAKE ANY CHANGES AND/OR COMBINATIONS TO THE PROJECT PHASING LIMITS OR ORDER OF WORK WITHOUT PRIOR APPROVAL BY THE ENGINEER, AIRPORT OPERATIONS, AND THE KCAD. THE KCAD RESERVES THE RIGHT TO MAKE CHANGES TO THE SCHEDULE AS IT DEEMS NECESSARY.
5. ALL PROJECT WORK SHALL BE COMPLETED WITHIN THE SPECIFIED CALENDAR DAYS PER EACH PHASE. REFERENCE THE PROJECT MANUAL FOR INFORMATION REGARDING LIQUIDATED DAMAGES.

	CONSTRUCTION CALENDAR DAYS	CALENDAR YEAR 2023						
		JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	
		PHASE 1		PHASE 2		PHASE 3		
WORK AREA A	110							
WORK AREA B	89							
WORK AREA C	45							

LEGEND:

- WORK AREA A LIMITS
- WORK AREA B LIMITS
- WORK AREA C LIMITS
- CONTRACTOR STAGING & BATCH PLANT SITE
- CONTRACTOR ACCESS ROUTE

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CITY OF FOUNTAINS HEART OF THE NATION
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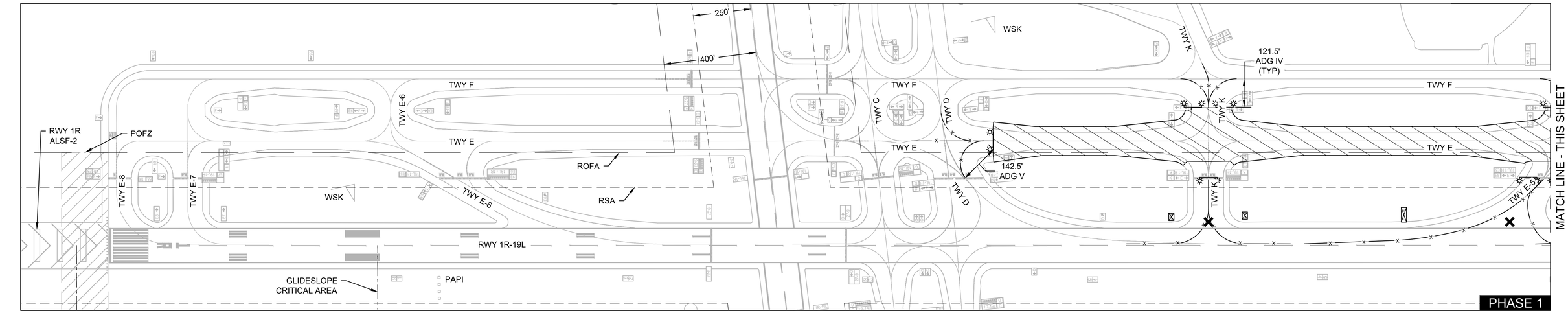
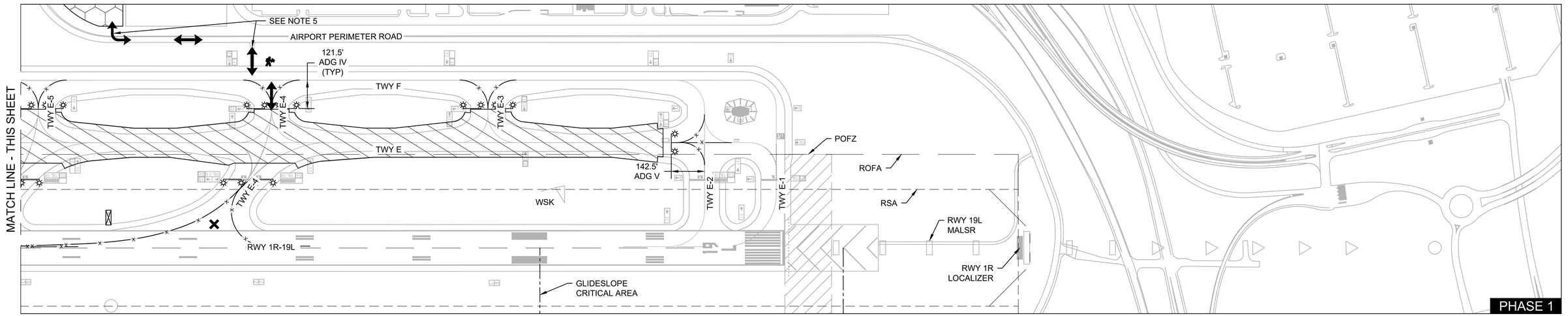
TAXIWAY E AND TAXIWAY J REHABILITATION

OVERALL PHASING PLAN

Design: MMW	CAD File: 62230566G04.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. G04 5 of 104

CAD File: 62230566G04.dwg





GENERAL NOTES:

1. PRIOR TO THE START OF WORK, THE CONTRACTOR SHALL INSTALL THE REQUIRED TRAFFIC CONTROL AS SHOWN. COST SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC. TRAFFIC CONTROL WILL REQUIRE THE TEMPORARY CLOSURE OF RUNWAY 1R-19L, TAXIWAY D, AND TAXIWAY F. CLOSURE OF RUNWAY 1R-19L, TAXIWAY D, AND TAXIWAY F SHALL BE COORDINATED WITH AIRPORT OPERATIONS AT LEAST 72 HOURS IN ADVANCE OF THE START OF WORK.

2. MARKINGS SHALL BE BLACKED OUT THAT LEAD INTO AREAS CLOSED FOR CONSTRUCTION AND COSTS SHALL BE PER SPECIFICATION P-620-2, TEMPORARY PAVEMENT MARKINGS. RUNWAY HOLD BARS, SURFACE PAINTED HOLD POSITION SIGNS AND THERMOPLASTIC PAVEMENT MARKINGS SHALL REMAIN. THE EXACT EXTENT AND LOCATIONS OF MARKINGS TO BE BLACKED OUT SHALL BE COORDINATED WITH THE RPR AND AIRPORT OPERATIONS PRIOR TO START OF THE PHASE AND MAY NOT COMMENCE UNTIL THE PHASE AREA HAS BEEN CLOSED TO AIRCRAFT TRAFFIC. THE CONTRACTOR IS RESPONSIBLE FOR REPAINTING OF ANY PERMANENT MARKINGS AND INSTALLATION OF NEW TEMPORARY MARKINGS AS NECESSARY PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS. REPAINTING BLACKOUT PERMANENT MARKINGS LEADING INTO CLOSURE AREAS AND NEW PAVEMENT MARKINGS ARE REQUIRED AS SHOWN HERE AND ON THE MARKING PLANS WITH COST BE PER ITEM P-620-1, RUNWAY AND TAXIWAY MARKING AND P-620-2, TEMPORARY PAVEMENT MARKINGS.

3. LIGHTS AND SIGNAGE SHALL BE COVERED/ DISCONNECTED/ JUMPERED/ REMOVED WITHIN AREAS CLOSED FOR CONSTRUCTION EXCEPT AS FOLLOWS: ELEVATED AND IN-PAVEMENT RUNWAY GUARD LIGHTS AND RUNWAY HOLDING POSITION SIGNS SHALL REMAIN LIT. TAXIWAY CENTERLINE LIGHTS LEADING INTO AREAS CLOSED FOR CONSTRUCTION SHALL BE DISCONNECTED OR COVERED. TAXIWAY DIRECTION SIGNS ON ACTIVE PAVEMENTS POINTING TOWARD AREAS CLOSED FOR CONSTRUCTION SHALL REMAIN LIT. THE EXACT EXTENT AND LOCATIONS OF AFFECTED LIGHTS AND SIGNAGE SHALL BE COORDINATED WITH THE RPR AND AIRPORT OPERATIONS PRIOR TO START OF THE PHASE AND MAY NOT COMMENCE UNTIL THE PHASE AREA HAS BEEN CLOSED TO AIRCRAFT TRAFFIC. ALL WORK MUST BE COMPLETED PRIOR TO DUSK OR, IF AT NIGHT, IMMEDIATELY AFTER THE PHASE AREA HAS BEEN CLOSED TO AIRCRAFT TRAFFIC. THE CONTRACTOR IS RESPONSIBLE FOR RE-INSTALLATION OF ANY LIGHTS AND SIGNAGE THAT ARE COVERED OR REMOVED AS NECESSARY PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS. COST SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC.

4. CONTRACTOR SHALL INSTALL SILT FENCE TO DELINEATE THE BOUNDARY OF THE RUNWAY SAFETY AREA (RSA) FOR RUNWAY 1R-19L AND TAXIWAY OBJECT FREE AREA (TOFA) OF TAXIWAY F. SILT FENCE SHALL REMAIN 2FT (MINIMUM) CLEAR OF THE TOFA. NO UNAUTHORIZED OBJECTS OR PERSONNEL ARE ALLOWED INSIDE AN ACTIVE TOFA. REFERENCE EROSION CONTROL DETAILS FOR SILT FENCE INSTALLATION. INSTALLATION OF THIS SILT FENCE SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC.

5. THE CONTRACTOR SHALL UTILIZE THE AIRPORT PERIMETER ROAD TO ACCESS THE PHASE 1 WORK AREA VIA A TEMPORARY AOA GATE. THE CONTRACTOR SHALL CONSTRUCT A NEW HAUL ROAD FROM THE CONTRACTOR STAGING AREA TO THE EXISTING AIRPORT PERIMETER ROAD AND IMPROVE THE EXISTING HAUL ROAD TO TAXIWAY F FROM THE AIRPORT PERIMETER ROAD AS NECESSARY FOR HAULING OPERATIONS. THE CONTRACTOR SHALL NOT USE THE OVERHAUL BASE APRON OR ADJACENT TAXIWAYS FOR HAULING OPERATIONS. HAUL ROUTES LIMITS TO BE CONSTRUCTED AND USED SHALL BE SHOWN ON CONTRACTOR SUBMITTED SITE PLAN. ANY IMPROVEMENTS REQUIRED FOR HAULING OPERATIONS ON THE AIRPORT PERIMETER ROAD OR THE EXISTING CONNECTOR ROADWAY SHALL BE INCIDENTAL TO ITEM C-105-1, MOBILIZATION. ALL TEMPORARY HAUL ROADS AND THE CONNECTOR ROADWAY FROM THE AIRPORT PERIMETER ROAD TO TAXIWAY F SHALL BE REMOVED ENTIRELY, REGRADED, AND SEEDED FOLLOWING COMPLETION OF THE PROJECT.

6. PAVEMENT MARKING REMOVAL AND REMARKING INDICATED ON THE CD AND CM SHEETS OUTSIDE OF THE BARRICADE LIMITS NOT REQUIRED FOR MAINTENANCE OF TRAFFIC SHALL NOT BE REMOVED UNTIL TEMPORARY MARKINGS ARE TO BE INSTALLED AT THE END OF THE PHASE. THE CONTRACTOR SHALL COORDINATE WITH AIRPORT OPERATIONS FOR THE CLOSURE OF TAXIWAY F TO COMPLETE REQUIRED PAVEMENT MARKING WORK.

7. END OF PHASE INSPECTIONS WILL BE CONDUCTED BY THE RPR, CONTRACTOR, AND AIRPORT OPERATIONS PRIOR TO OPENING AIRFIELD PAVEMENT TO AIR TRAFFIC. IN PROJECT AREAS THAT REQUIRE THE TEMPORARY CLOSURE OF AIRFIELD PAVEMENT, AIRPORT OPERATIONS WILL HAVE THE FINAL WORD ON THE ACCEPTANCE OF CLEANED CONSTRUCTION AREAS PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS.

PHASE 1	RWY 1R		RWY 19L		TWY F
AVAILABILITY	ARRIVAL	DEPARTURE	ARRIVAL	DEPARTURE	OPEN
CONSTRAINTS	EXIT AT TWY C, D, E-1 OR E-2	N/A	EXIT AT TWY C, D, E-6 OR E-7	N/A	ADG IV (NORTH OF TWY D)
NAVAIDS	NO IMPACT		NO IMPACT		N/A

PHASE	WORK ACTIVITIES	PAVEMENT CLOSURES	MAX CLOSURE DURATION (DAYS)
PHASE 1	• SURFACE PCCP RECONSTRUCTION; TWY E AND SHOULDERS • AIRFIELD LIGHTING INSTALLATION • TEMPORARY/ PERMANENT PAVEMENT MARKING	TWY E (BETWEEN TWY D AND E-2) TWY E-3, E-4, E-5 AND K (BETWEEN RWY 1R-19L AND TWY F)	66

LEGEND:

- WORK AREA A LIMITS
- CONTRACTOR ACCESS ROUTE
- LOW PROFILE FLASHER BARRICADE (1 / G08)
- TAXIWAY CLOSURE MARKER (2 / G08)
- CENTERLINE LIGHTS/MARKINGS TO BE TURNED OFF OR BLACKED OUT
- SIGNAGE TO BE COVERED
- FLAGGER

STATE OF MISSOURI
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PROFESSIONAL ENGINEER

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MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

PHASING PLAN 1

Design: MMW	CAD File: 62230566G04.dwg	Aviation Project No. 62230566	
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. G05	6 of 104

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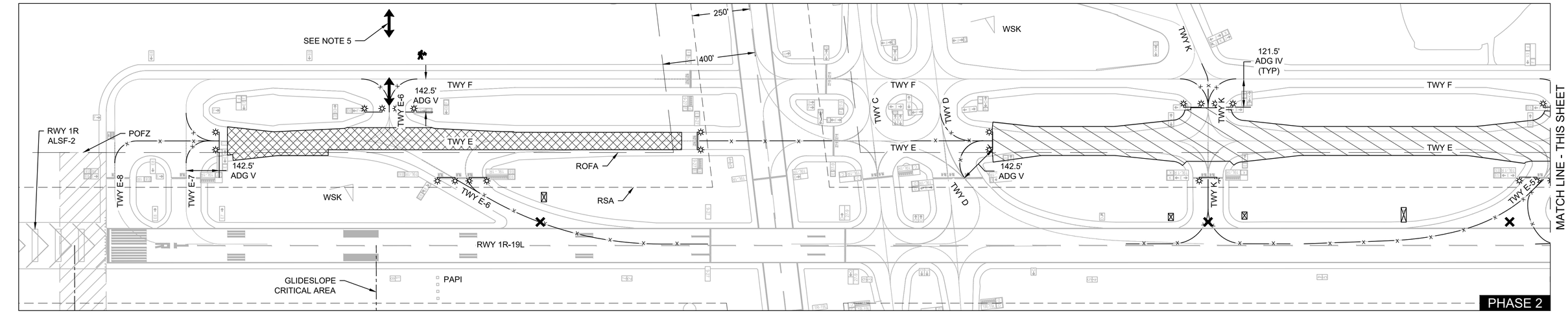

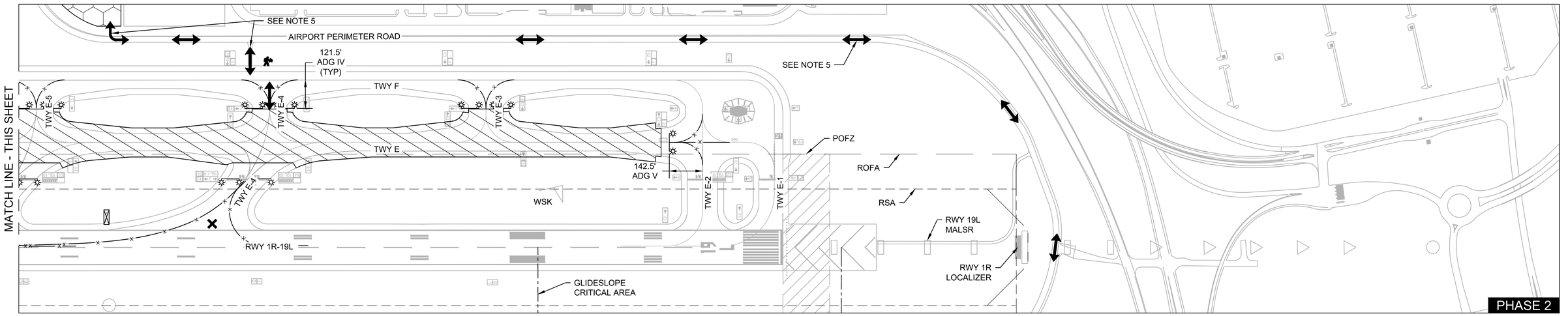

GENERAL NOTES:

1. PRIOR TO THE START OF WORK, THE CONTRACTOR SHALL INSTALL THE REQUIRED TRAFFIC CONTROL AS SHOWN. COST SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC. TRAFFIC CONTROL WILL REQUIRE THE TEMPORARY CLOSURE OF RUNWAY 1R-19L, RUNWAY 9-27, AND TAXIWAY F. CLOSURE OF RUNWAY 1R-19L, RUNWAY 9-27, AND TAXIWAY F SHALL BE COORDINATED WITH AIRPORT OPERATIONS AT LEAST 72 HOURS IN ADVANCE OF THE START OF WORK.

2. MARKINGS SHALL BE BLACKED OUT THAT LEAD INTO AREAS CLOSED FOR CONSTRUCTION AND COSTS SHALL BE PER SPECIFICATION P-620-2, TEMPORARY PAVEMENT MARKINGS. RUNWAY HOLD BARS, SURFACE PAINTED HOLD POSITION SIGNS AND THERMOPLASTIC PAVEMENT MARKINGS SHALL REMAIN. THE EXACT EXTENT AND LOCATIONS OF MARKINGS TO BE BLACKED OUT SHALL BE COORDINATED WITH THE RPR AND AIRPORT OPERATIONS PRIOR TO START OF THE PHASE AND MAY NOT COMMENCE UNTIL THE PHASE AREA HAS BEEN CLOSED TO AIRCRAFT TRAFFIC. THE CONTRACTOR IS RESPONSIBLE FOR REPAINTING OF ANY PERMANENT MARKINGS AND INSTALLATION OF NEW TEMPORARY MARKINGS AS NECESSARY PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS. REPAINTING BLACKOUT PERMANENT MARKINGS LEADING INTO CLOSURE AREAS AND NEW PAVEMENT MARKINGS ARE REQUIRED AS SHOWN HERE AND ON THE MARKING PLANS WITH COST BE PER SPECIFICATION P-620-1, RUNWAY AND TAXIWAY MARKING AND P-620-2, TEMPORARY PAVEMENT MARKINGS.

3. LIGHTS AND SIGNAGE SHALL BE COVERED/ DISCONNECTED/ JUMPERED/ REMOVED WITHIN AREAS CLOSED FOR CONSTRUCTION EXCEPT AS FOLLOWS: ELEVATED AND IN-PAVEMENT RUNWAY GUARD LIGHTS AND RUNWAY HOLDING POSITION SIGNS SHALL REMAIN LIT. TAXIWAY CENTERLINE LIGHTS LEADING INTO AREAS CLOSED FOR CONSTRUCTION SHALL BE DISCONNECTED OR COVERED. TAXIWAY DIRECTION SIGNS ON ACTIVE PAVEMENTS POINTING TOWARD AREAS CLOSED FOR CONSTRUCTION SHALL REMAIN LIT. THE EXACT EXTENT AND LOCATIONS OF AFFECTED LIGHTS AND SIGNAGE SHALL BE COORDINATED WITH THE RPR AND AIRPORT OPERATIONS PRIOR TO START OF THE PHASE AND MAY NOT COMMENCE UNTIL THE PHASE AREA HAS BEEN CLOSED TO AIRCRAFT TRAFFIC. ALL WORK MUST BE COMPLETED PRIOR TO DUSK OR, IF AT NIGHT, IMMEDIATELY AFTER THE PHASE AREA HAS BEEN CLOSED TO AIRCRAFT TRAFFIC. THE CONTRACTOR IS RESPONSIBLE FOR RE-INSTALLATION OF ANY LIGHTS AND SIGNAGE THAT ARE COVERED OR REMOVED AS NECESSARY PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS. COST SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC.

4. CONTRACTOR SHALL INSTALL SILT FENCE TO DELINEATE THE BOUNDARY OF THE RUNWAY SAFETY AREA (RSA) FOR RUNWAY 1R-19L AND TAXIWAY OBJECT FREE AREA (TOFA) OF TAXIWAY F. SILT FENCE SHALL REMAIN 2FT (MINIMUM) CLEAR OF THE TOFA. NO UNAUTHORIZED OBJECTS OR PERSONNEL ARE ALLOWED INSIDE AN ACTIVE TOFA. REFERENCE EROSION CONTROL DETAILS FOR SILT FENCE INSTALLATION. INSTALLATION OF THIS SILT FENCE SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC.

5. THE CONTRACTOR SHALL UTILIZE THE AIRPORT PERIMETER ROAD TO ACCESS THE PHASE 2 WORK AREA VIA A TEMPORARY AOA GATE. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN A NEW HAUL ROAD FROM THE CONTRACTOR STAGING AREA AND TAXIWAY F TO THE EXISTING AIRPORT PERIMETER ROAD AND IMPROVE THE EXISTING HAUL ROAD AS NECESSARY FOR HAULING OPERATIONS. THE CONTRACTOR SHALL NOT USE THE OVERHAUL BASE APRON OR ADJACENT TAXIWAYS FOR HAULING OPERATIONS. HAUL ROUTES LIMITS TO BE CONSTRUCTED AND USED SHALL BE SHOWN ON CONTRACTOR SUBMITTED SITE PLAN. ANY IMPROVEMENTS REQUIRED FOR HAULING OPERATIONS ON THE AIRPORT PERIMETER ROAD OR THE EXISTING CONNECTOR ROADWAY SHALL BE INCIDENTAL TO ITEM C-105-1, MOBILIZATION. THIS SHALL INCLUDE STORM PIPES UNDER THE ROADWAY TO MAINTAIN DRAINAGE TO THE SATISFACTION OF AIRPORT OPERATIONS. ALL TEMPORARY HAUL ROADS AND THE CONNECTOR ROADWAY FROM THE AIRPORT PERIMETER ROAD TO TAXIWAY F SHALL BE REMOVED ENTIRELY, REGRADED, AND SEEDED FOLLOWING COMPLETION OF THE PROJECT.

6. PAVEMENT MARKING REMOVAL AND REMARKING INDICATED ON THE CD AND CM SHEETS OUTSIDE OF THE BARRICADE LIMITS NOT REQUIRED FOR MAINTENANCE OF TRAFFIC SHALL NOT BE REMOVED UNTIL TEMPORARY MARKINGS ARE TO BE INSTALLED AT THE END OF THE PHASE. THE CONTRACTOR SHALL COORDINATE WITH AIRPORT OPERATIONS FOR THE CLOSURE OF TAXIWAY F TO COMPLETE REQUIRED PAVEMENT MARKING WORK.

7. END OF PHASE INSPECTIONS WILL BE CONDUCTED BY THE RPR, CONTRACTOR, AND AIRPORT OPERATIONS PRIOR TO OPENING AIRFIELD PAVEMENT TO AIR TRAFFIC. IN PROJECT AREAS THAT REQUIRE THE TEMPORARY CLOSURE OF AIRFIELD PAVEMENT, AIRPORT OPERATIONS WILL HAVE THE FINAL WORD ON THE ACCEPTANCE OF CLEANED CONSTRUCTION AREAS PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS.

PHASE 2	RWY 1R		RWY 19L		TWY F
AVAILABILITY	ARRIVAL	DEPARTURE	ARRIVAL	DEPARTURE	OPEN
CONSTRAINTS	EXIT AT TWY C, D, E-1 OR E-2	N/A	EXIT AT TWY C, D, E-7 OR E-8	N/A	ADG IV (NORTH OF TWY D)
NAVAIDS	NO IMPACT		NO IMPACT		N/A

PHASE	WORK ACTIVITIES	PAVEMENT CLOSURES	MAX CLOSURE DURATION (DAYS)
PHASE 2	• SURFACE PCCP RECONSTRUCTION; TWY E AND SHOULDERS • AIRFIELD LIGHTING INSTALLATION • TEMPORARY/ PERMANENT PAVEMENT MARKING	TWY E (BETWEEN TWY D AND E-2 AND BETWEEN RWY 9-27 RSA AND TWY E-7) TWY E-3, E-4, E-5, E-6 AND K (BETWEEN RWY 1R-19L AND TWY F)	44

LEGEND:

- WORK AREA A LIMITS
- WORK AREA B LIMITS
- CONTRACTOR ACCESS ROUTE
- LOW PROFILE FLASHER BARRICADE (1 / G08)
- TAXIWAY CLOSURE MARKER (2 / G08)
- CENTERLINE LIGHTS/MARKINGS TO BE TURNED OFF OR BLACKED OUT
- SIGNAGE TO BE COVERED
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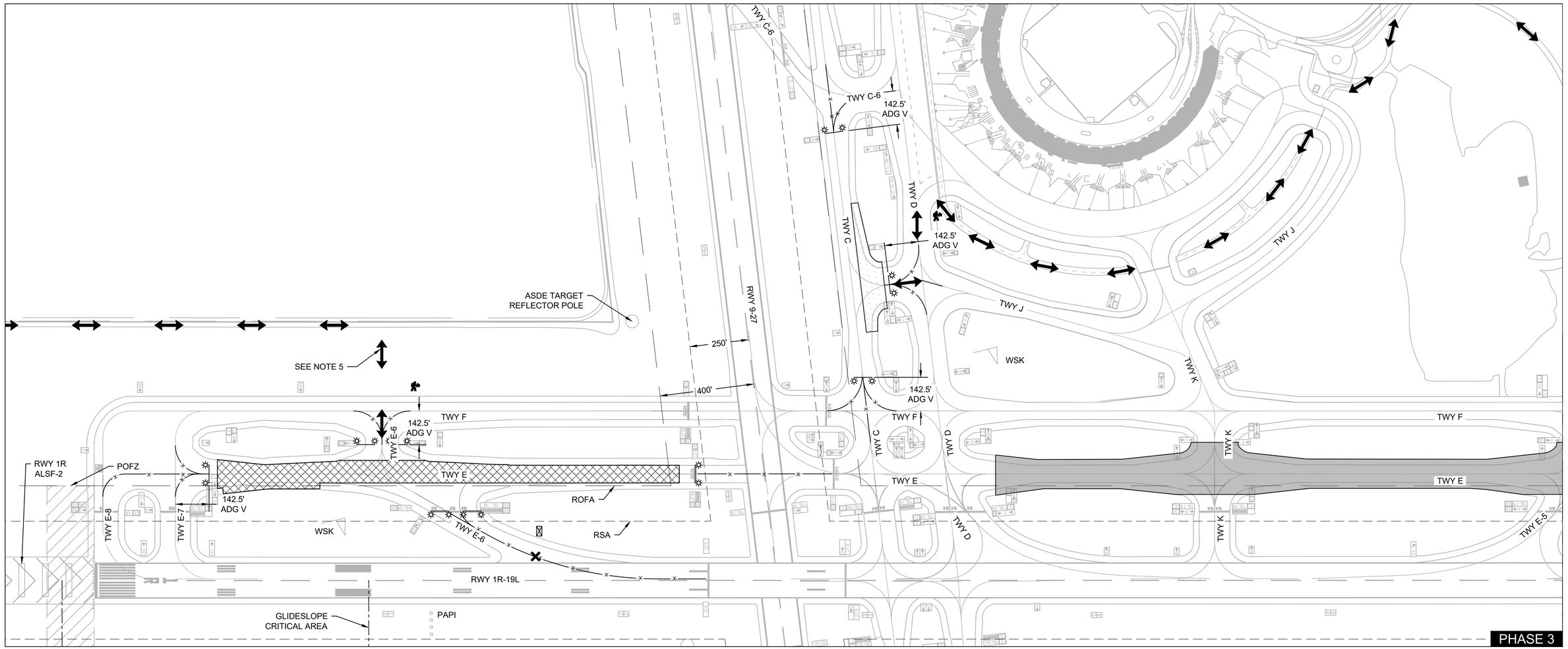
PHASING PLAN 2

Design: MMW	CAD File: 62230566G04.dwg	Aviation Project No.	62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	G06 7 of 104

CAD File: 62230566G04.dwg



GENERAL NOTES:

1. PRIOR TO THE START OF WORK, THE CONTRACTOR SHALL INSTALL THE REQUIRED TRAFFIC CONTROL AS SHOWN. COST SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC. TRAFFIC CONTROL WILL REQUIRE THE TEMPORARY CLOSURE OF TAXIWAYS ADJACENT TO THE WORK AREA. CLOSURE OF TAXIWAYS ADJACENT TO THE WORK AREA SHALL BE COORDINATED WITH AIRPORT OPERATIONS AT LEAST 72 HOURS IN ADVANCE OF THE START OF WORK.

2. MARKINGS SHALL BE BLACKED OUT THAT LEAD INTO AREAS CLOSED FOR CONSTRUCTION AND COSTS SHALL BE PER SPECIFICATION P-620-2, TEMPORARY PAVEMENT MARKINGS. RUNWAY HOLD BARS, SURFACE PAINTED HOLD POSITION SIGNS AND THERMOPLASTIC PAVEMENT MARKINGS SHALL REMAIN. THE EXACT EXTENT AND LOCATIONS OF MARKINGS TO BE BLACKED OUT SHALL BE COORDINATED WITH THE RPR AND AIRPORT OPERATIONS PRIOR TO START OF THE PHASE AND MAY NOT COMMENCE UNTIL THE PHASE AREA HAS BEEN CLOSED TO AIRCRAFT TRAFFIC. THE CONTRACTOR IS RESPONSIBLE FOR REPAINTING OF ANY PERMANENT MARKINGS AND INSTALLATION OF NEW TEMPORARY MARKINGS AS NECESSARY PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS. REPAINTING BLACKOUT PERMANENT MARKINGS LEADING INTO CLOSURE AREAS AND NEW PAVEMENT MARKINGS ARE REQUIRED AS SHOWN HERE AND ON THE MARKING PLANS WITH COST BE PER SPECIFICATION P-620-1, RUNWAY AND TAXIWAY MARKING AND P-620-2, TEMPORARY PAVEMENT MARKINGS.

3. LIGHTS AND SIGNAGE SHALL BE COVERED/ DISCONNECTED/ JUMPERED/ REMOVED WITHIN AREAS CLOSED FOR CONSTRUCTION EXCEPT AS FOLLOWS: ELEVATED AND IN-PAVEMENT RUNWAY GUARD LIGHTS AND RUNWAY HOLDING POSITION SIGNS SHALL REMAIN LIT. TAXIWAY CENTERLINE LIGHTS LEADING INTO AREAS CLOSED FOR CONSTRUCTION SHALL BE DISCONNECTED OR COVERED. TAXIWAY DIRECTION SIGNS ON ACTIVE PAVEMENTS POINTING TOWARD AREAS CLOSED FOR CONSTRUCTION SHALL REMAIN LIT. THE EXACT EXTENT AND LOCATIONS OF AFFECTED LIGHTS AND SIGNAGE SHALL BE COORDINATED WITH THE RPR AND AIRPORT OPERATIONS PRIOR TO START OF THE PHASE AND MAY NOT COMMENCE UNTIL THE PHASE AREA HAS BEEN CLOSED TO AIRCRAFT TRAFFIC. ALL WORK MUST BE COMPLETED PRIOR TO DUSK OR, IF AT NIGHT, IMMEDIATELY AFTER THE PHASE AREA HAS BEEN CLOSED TO AIRCRAFT TRAFFIC. THE CONTRACTOR IS RESPONSIBLE FOR RE-INSTALLATION OF ANY LIGHTS AND SIGNAGE THAT ARE COVERED OR REMOVED AS NECESSARY PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS. COST SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC.

4. CONTRACTOR SHALL INSTALL SILT FENCE TO DELINEATE THE BOUNDARY OF THE RUNWAY SAFETY AREA (RSA) FOR RUNWAY 1R-19L. SILT FENCE SHALL REMAIN 2FT (MINIMUM) CLEAR OF THE TOFA. NO UNAUTHORIZED OBJECTS OR PERSONNEL ARE ALLOWED INSIDE AN ACTIVE TOFA. REFERENCE EROSION CONTROL DETAILS FOR SILT FENCE INSTALLATION. INSTALLATION OF THIS SILT FENCE SHALL BE INCIDENTAL TO ITEM C-106-1, MAINTENANCE OF TRAFFIC.

5. THE CONTRACTOR SHALL UTILIZE THE AIRPORT PERIMETER ROAD TO ACCESS THE PHASE 3 WORK AREA VIA A TEMPORARY AOA GATE. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN A NEW HAUL ROAD FROM THE CONTRACTOR STAGING AREA AND TAXIWAY F TO THE EXISTING AIRPORT PERIMETER ROAD AND IMPROVE THE EXISTING HAUL ROAD AS NECESSARY FOR HAULING OPERATIONS. THE CONTRACTOR SHALL NOT USE THE OVERHAUL BASE APRON OR ADJACENT TAXIWAYS FOR HAULING OPERATIONS. HAUL ROUTES LIMITS TO BE CONSTRUCTED AND USED SHALL BE SHOWN ON CONTRACTOR SUBMITTED SITE PLAN. ANY IMPROVEMENTS REQUIRED FOR HAULING OPERATIONS ON THE AIRPORT PERIMETER ROAD OR THE EXISTING CONNECTOR ROADWAY SHALL BE INCIDENTAL TO ITEM C-105-1, MOBILIZATION. ALL TEMPORARY HAUL ROADS SHALL BE REMOVED ENTIRELY, REGRADED, AND SEEDED FOLLOWING COMPLETION OF THE PROJECT.

6. PAVEMENT MARKING REMOVAL AND REMARKING INDICATED ON THE CD AND CM SHEETS OUTSIDE OF THE BARRICADE LIMITS NOT REQUIRED FOR MAINTENANCE OF TRAFFIC SHALL NOT BE REMOVED UNTIL TEMPORARY MARKINGS ARE TO BE INSTALLED AT THE END OF THE PHASE. THE CONTRACTOR SHALL COORDINATE WITH AIRPORT OPERATIONS FOR THE CLOSURE OF TAXIWAY F AND TAXIWAY D TO COMPLETE REQUIRED PAVEMENT MARKING WORK.

7. END OF PHASE INSPECTIONS WILL BE CONDUCTED BY THE RPR, CONTRACTOR, AND AIRPORT OPERATIONS PRIOR TO OPENING AIRFIELD PAVEMENT TO AIR TRAFFIC. IN PROJECT AREAS THAT REQUIRE THE TEMPORARY CLOSURE OF AIRFIELD PAVEMENT, AIRPORT OPERATIONS WILL HAVE THE FINAL WORD ON THE ACCEPTANCE OF CLEANED CONSTRUCTION AREAS PRIOR TO OPENING THE PHASE AREA FOR AIRCRAFT OPERATIONS.

PHASE 3	RWY 1R		RWY 19L		TWY F
AVAILABILITY	ARRIVAL	DEPARTURE	ARRIVAL	DEPARTURE	OPEN
CONSTRAINTS	N/A	N/A	EXIT AT TWY C, D, E-7 OR E-8	N/A	N/A
NAVAIDS	NO IMPACT		NO IMPACT		N/A

PHASE	WORK ACTIVITIES	PAVEMENT CLOSURES	MAX CLOSURE DURATION (DAYS)
PHASE 3	• SURFACE PCCP RECONSTRUCTION; TWY E, TWY J AND TWY E SHOULDERS • 2" ASPHALT MILL AND OVERLAY: TWY J SHOULDERS • AIRFIELD LIGHTING INSTALLATION • TEMPORARY/ PERMANENT PAVEMENT MARKING	TWY C (BETWEEN TWY C-6 AND F) TWY E (BETWEEN RWY 9-27 RSA AND TWY E-7) TWY E-6 (BETWEEN RWY 1R-19L AND TWY F) TWY J (BETWEEN TWY C AND D)	45

LEGEND:

- WORK AREA B LIMITS
- WORK AREA C LIMITS
- PREVIOUSLY COMPLETED
- CONTRACTOR ACCESS ROUTE
- LOW PROFILE FLASHER BARRICADE (1 / G08)
- TAXIWAY CLOSURE MARKER (2 / G08)
- CENTERLINE LIGHTS/MARKINGS TO BE TURNED OFF OR BLACKED OUT
- SIGNAGE TO BE COVERED
- FLAGGER

STATE OF MISSOURI LYNETTE MELLETT NUMBER PE-2015000016 PROFESSIONAL ENGINEER

200 0 200 400
Scale Feet

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT
KCI

HNTB
715 Kirk Drive
Kansas City, MO 64105
Licensee No. 001270

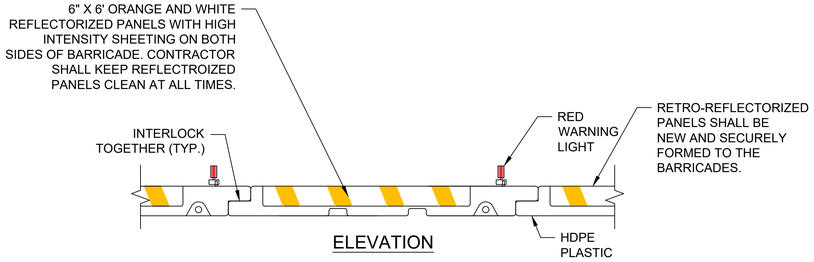
CITY OF FOUNTAINS. HEART OF THE NATION. KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

PHASING PLAN 3

Design: MMW	CAD File: 62230566G04.dwg	Aviation Project No.	62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	G07 8 of 104

CAD File: 62230566G04.dwg

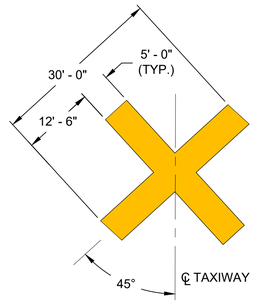


1 LOW PROFILE FLASHER BARRICADE

NOT TO SCALE

LOW PROFILE FLASHER BARRICADE NOTES:

1. PLACEMENT AND MAINTENANCE OF BARRICADES SHALL BE CONSIDERED SUBSIDIARY TO ITEM C-106-1, MAINTENANCE OF TRAFFIC.
2. 360 DEG. FLASHERS TO BE BATTERY OPERATED AND/OR SOLAR POWERED.
3. FACING OF LOW-PROFILE BARRICADE TO BE COVERED WITH REFLECTIVE MATERIAL.
4. LOW-PROFILE BARRICADES TO BE PLACED END TO END, NO SPACING BETWEEN BARRICADES ALONG OPERATIONAL PAVEMENT, ADJACENT TO CONSTRUCTION.
5. 360 DEG. FLASHERS SHALL BE SECURED TO THE BARRICADES, PER MANUFACTURER'S INSTRUCTIONS.
6. LOW-PROFILE BARRICADES SHALL BE OF LOW MASS, EASILY COLLAPSIBLE UPON CONTACT WITH AN AIRCRAFT OR ANY OF IT'S COMPONENTS, AND WEIGHTED.
7. THE CONTRACTOR SHALL MAINTAIN ALL BARRICADES AND ENSURE THEY ARE IN WORKING ORDER TWENTY-FOUR (24) HOURS A DAY, FOR THE DURATION OF THE PROJECT. THE BARRICADE LIGHTING SHALL BE CHECKED NIGHTLY BY THE CONTRACTOR.
8. THE LIGHTS SHALL BE OPERATIONAL AT EACH BARRICADE LOCATION AT ALL TIMES. ANY LIGHTS FOUND NON-OPERATIONAL SHALL BE REPAIRED OR REPLACED.
9. ALL BARRIERS AND BARRIER PLACEMENT SHALL BE IN COMPLIANCE WITH AC 150/5370-2G, OR MOST CURRENT EDITION.
10. ALL CONTRACTOR-PROVIDED BARRIERS AND LIGHTS SHALL CONFORM TO THE REQUIREMENTS OF SPECIFICATIONS. ALL BARRIERS SHALL BE FILLED WITH WATER AFTER PLACEMENT. FILL WITH POTASSIUM ACETATE SOLUTION DURING PERIODS OF SUB-FREEZING TEMPERATURES TO PREVENT FREEZING.
11. LIGHTED BARRICADES MAY BE USED TO MARK EXCAVATIONS OR TRENCHES.
12. BARRICADES SHALL BE KEPT CLEAN AT ALL TIMES.



2 TAXIWAY CLOSURE MARKER

NOT TO SCALE

TAXIWAY CLOSURE MARKER NOTES:

1. TAXIWAY CLOSURE MARKERS MAY BE CONSTRUCTED FROM: 4'X8'X1/2" EXTERIOR GRADE PLYWOOD PAINTED YELLOW WITH 6" BLACK BORDER, OR YELLOW POLYETHYLENE WEAVE FABRIC SECURED TO TREATED 2"X4" FRAME AND WEIGHED WITH SANDBAGS. SANDBAGS SHALL BE PAINTED YELLOW.
2. PLACEMENT AND MAINTENANCE OF TAXIWAY CLOSURE MARKERS SHALL BE CONSIDERED SUBSIDIARY TO ITEM C-106-1, MAINTENANCE OF TRAFFIC.
3. TAXIWAY CLOSURE MARKERS MUST BE SECURED TO PREVENT DISPLACEMENT BY JET BLAST OR WINDS.



No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT
KCI

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715 Kirk Drive
Kansas City, MO 64105
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CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

SAFETY AND PHASING DETAILS

Design: MMW	CAD File:62230566G08.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. G08 9 of 104

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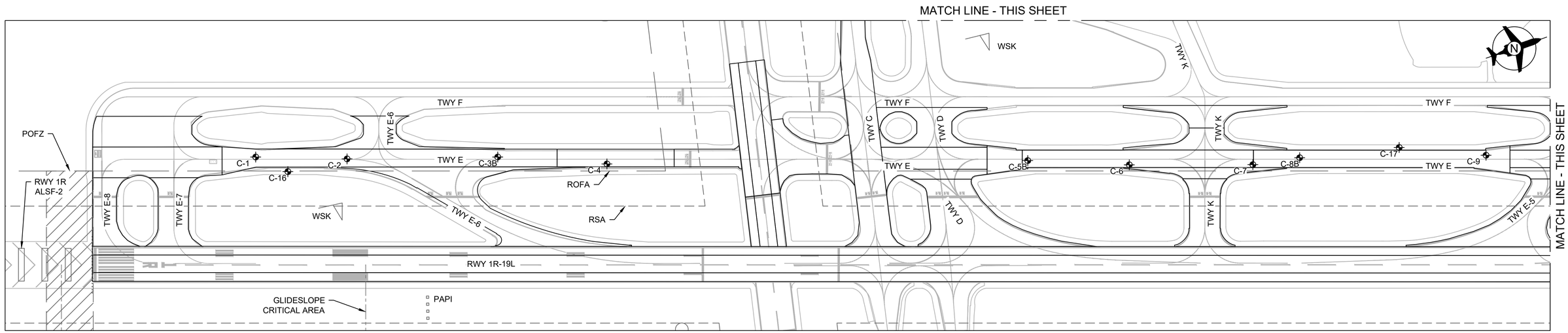

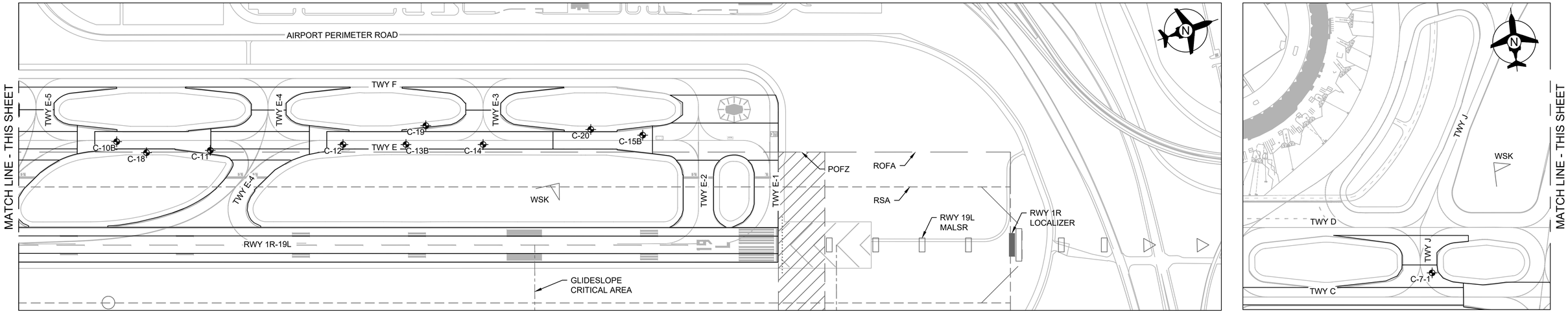

SUMMARY OF BORING LOGS

C-1
17.75" CONCRETE
6.75" LEAN CONCRETE

C-2
17" CONCRETE
7.5" LEAN CONCRETE

C-3B
17.25" CONCRETE
7.25" LEAN CONCRETE

C-4
18" CONCRETE
6" LEAN CONCRETE

C-5B
17" CONCRETE
7.5" LEAN CONCRETE

C-6
17" CONCRETE
6.5" LEAN CONCRETE

C-7
18" CONCRETE
6.75" LEAN CONCRETE

C-8B
17.5" CONCRETE
7.25" LEAN CONCRETE

C-9
16.5" CONCRETE
7" LEAN CONCRETE

C-10B
16.5" CONCRETE
6.5" LEAN CONCRETE

C-11
17.5" CONCRETE
6.5" LEAN CONCRETE

C-12
17.25" CONCRETE
7.75" LEAN CONCRETE

C-13B
17.5" CONCRETE
7.75" LEAN CONCRETE

C-14
17.25" CONCRETE
7" LEAN CONCRETE

C-15B
16.25" CONCRETE
7.25" LEAN CONCRETE

C-16
8.25" ASPHALT

C-17
7.75" ASPHALT

C-18
9.5" ASPHALT

C-19
10.25" ASPHALT

C-20
8.75" ASPHALT

C-7-1
15" CONCRETE
3" ASPHALT
6.5" CONCRETE
5.5" ASPHALT

GENERAL NOTES:

1. BORING AND CORING INFORMATION PROVIDED ON EXISTING PAVEMENT SECTIONS IS COMPILED FROM THE GEOTECHNICAL INVESTIGATION. THE INFORMATION IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. REFER TO THE PROJECT GEOTECHNICAL REPORT IN THE PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION.

LEGEND

C-XXB BORING LOCATION

C-XX CORING LOCATION

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

200 0 200 400
Scale Feet

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
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CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

BORING AND CORING PLAN

Design: MMW	CAD File:62230566G09.dwg	Aviation Project No. 62230566	
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. G09	10 of 104

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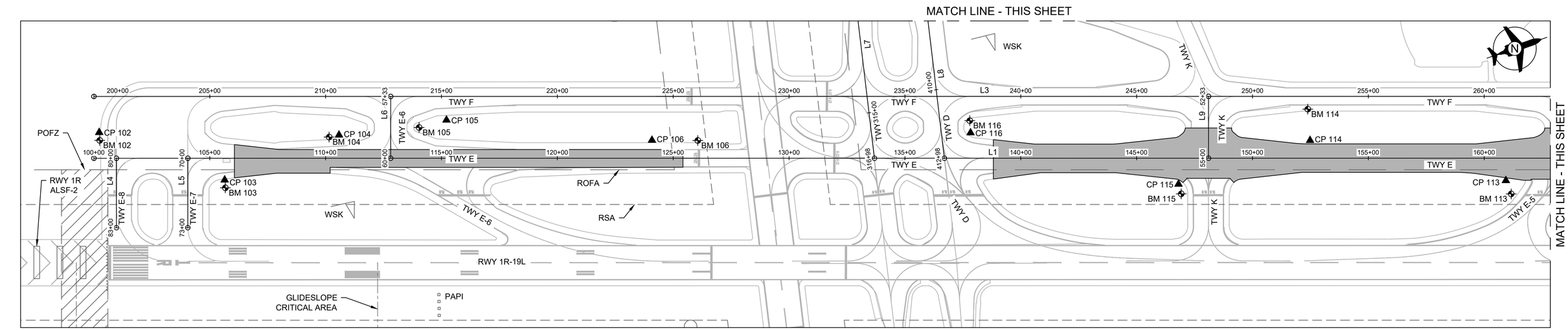

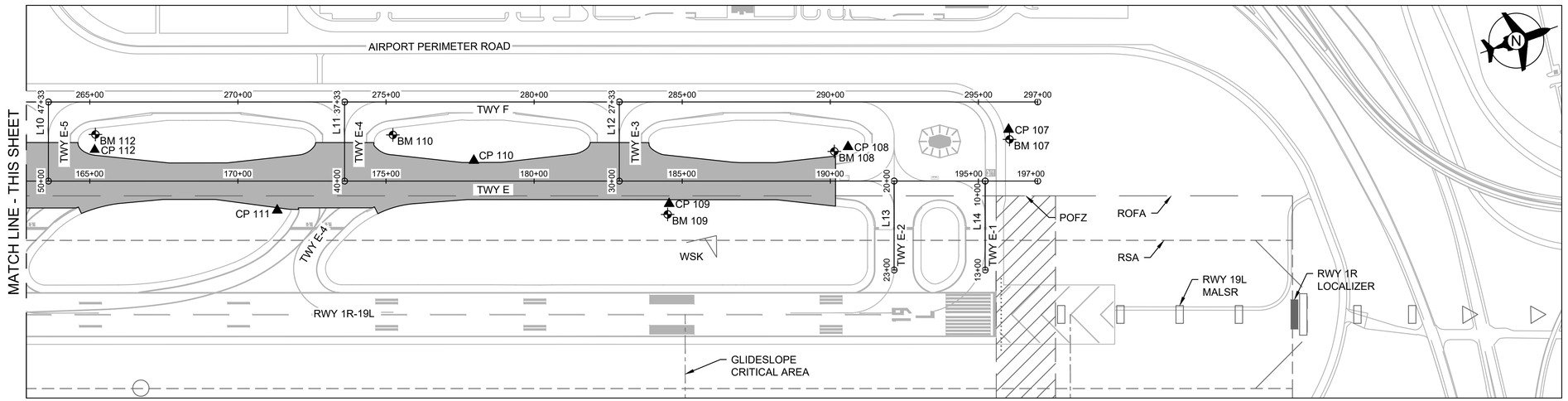

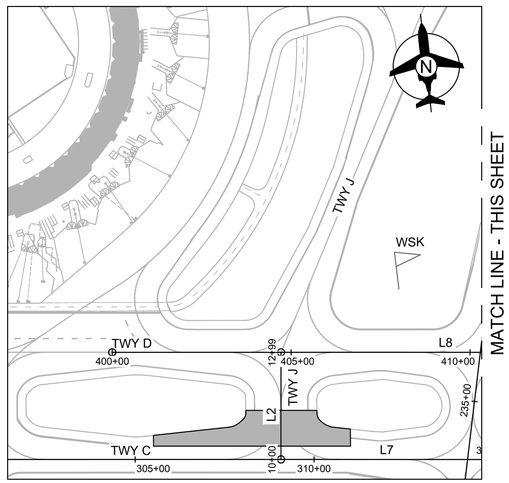

ALIGNMENT NAME: TWY E						
Number	POINT TYPE	STATION	NORTHING	EASTING	LENGTH	BEARING
L1	P.O.B. P.O.E.	100+00.00 197+00.00	N 1134385.73 N 1143834.23	E 2729361.37 E 2731555.84	9700.00'	N13° 04' 31.67"E
ALIGNMENT NAME: TWY J						
Number	POINT TYPE	STATION	NORTHING	EASTING	LENGTH	BEARING
L2	P.O.B. P.O.E.	10+00.00 12+99.42	N 1137753.30 N 1138050.92	E 2729337.65 E 2729370.33	299.42'	N06° 15' 58.56"E
ALIGNMENT NAME: TWY F						
Number	POINT TYPE	STATION	NORTHING	EASTING	LENGTH	BEARING
L3	P.O.B. P.O.E.	200+00.00 297+00.00	N 1134446.13 N 1143894.64	E 2729101.30 E 2731295.77	9700.00'	N13° 04' 31.67"E
ALIGNMENT NAME: TWY E-8						
Number	POINT TYPE	STATION	NORTHING	EASTING	LENGTH	BEARING
L4	P.O.B. P.O.E.	80+00.00 83+00.00	N 1134480.28 N 1134412.41	E 2729383.33 E 2729675.56	300.00'	S76° 55' 28.33"E
ALIGNMENT NAME: TWY E-7						
Number	POINT TYPE	STATION	NORTHING	EASTING	LENGTH	BEARING
L5	P.O.B. P.O.E.	70+00.00 73+00.00	N 1134780.54 N 1134712.67	E 2729453.07 E 2729745.29	300.00'	S76° 55' 28.33"E

ALIGNMENT NAME: TWY E-6						
Number	POINT TYPE	STATION	NORTHING	EASTING	LENGTH	BEARING
L6	P.O.B. P.O.E.	57+33.00 60+00.00	N 1135693.82 N 1135633.41	E 2729391.08 E 2729651.16	267.00'	S76° 55' 28.33"E
ALIGNMENT NAME: TWY C						
Number	POINT TYPE	STATION	NORTHING	EASTING	LENGTH	BEARING
L7	P.O.B. P.O.E.	300+00.00 316+97.87	N 1137852.33 N 1137667.01	E 2728435.75 E 2730123.47	1697.87'	S83° 44' 01.44"E
ALIGNMENT NAME: TWY D						
Number	POINT TYPE	STATION	NORTHING	EASTING	LENGTH	BEARING
L8	P.O.B. P.O.E.	400+00.00 412+97.87	N 1138102.40 N 1137960.73	E 2728901.58 E 2730191.69	1297.87'	S83° 44' 01.44"E
ALIGNMENT NAME: TWY K						
Number	POINT TYPE	STATION	NORTHING	EASTING	LENGTH	BEARING
L9	P.O.B. P.O.E.	52+33.00 55+00.00	N 1139131.63 N 1139071.22	E 2730189.53 E 2730449.61	267.00'	S76° 55' 28.33"E
ALIGNMENT NAME: TWY E-5						
Number	POINT TYPE	STATION	NORTHING	EASTING	LENGTH	BEARING
L10	P.O.B. P.O.E.	47+33.00 50+00.00	N 1140641.43 N 1140581.02	E 2730540.19 E 2730800.27	267.00'	S76° 55' 28.33"E

ALIGNMENT NAME: TWY E-4						
Number	POINT TYPE	STATION	NORTHING	EASTING	LENGTH	BEARING
L11	P.O.B. P.O.E.	37+33.00 40+00.00	N 1141615.35 N 1141554.95	E 2730766.39 E 2731026.47	267.00'	S76° 55' 28.33"E
ALIGNMENT NAME: TWY E-3						
Number	POINT TYPE	STATION	NORTHING	EASTING	LENGTH	BEARING
L12	P.O.B. P.O.E.	27+33.00 30+00.00	N 1142518.66 N 1142458.26	E 2730976.19 E 2731236.27	267.00'	S76° 55' 28.33"E
ALIGNMENT NAME: TWY E-2						
Number	POINT TYPE	STATION	NORTHING	EASTING	LENGTH	BEARING
L13	P.O.B. P.O.E.	20+00.00 23+00.00	N 1143362.04 N 1143294.17	E 2731446.17 E 2731738.40	300.00'	S76° 55' 28.33"E
ALIGNMENT NAME: TWY E-1						
Number	POINT TYPE	STATION	NORTHING	EASTING	LENGTH	BEARING
L14	P.O.B. P.O.E.	10+00.00 13+00.00	N 1143661.57 N 1143593.70	E 2731515.74 E 2731807.96	300.00'	S76° 55' 28.33"E

GENERAL NOTES:

1. ORIGINAL HORIZONTAL COORDINATES ARE IN MODIFIED "GROUND COORDINATES" BASED ON THE MISSOURI STATE PLANE COORDINATE SYSTEM, NAD83 USING A COMBINED SCALE FACTOR OF 0.9999033. THE VERTICAL DATUM IS NAVD88 AND TIED TO METRO CONTROL STATION PL-13. ALL COORDINATES ARE SHOWN IN U.S. SURVEY FEET. TOPOGRAPHIC SURVEY PROVIDED BY TREKK DESIGN GROUP, LLC.
2. 1 METER = 3.28083333 U.S. SURVEY FEET
   STATE PLANE COORDINATES: N 348962.288 (M) / E 829520.215 (M) / ELEV=306.50 (M)
   GROUND COORDINATES: N 1144997.8278 / E 2721780.7682 / ELEV=1005.58
3. CONTRACTOR SHALL TAKE ALL MEANS NECESSARY TO AVOID DISTURBANCE OF SURVEY CONTROL MONUMENTS ESTABLISHED FOR THIS PROJECT. CONTRACTOR SHALL REESTABLISH SURVEY CONTROL AND BENCHMARKS IN INSTANCES WHEN MONUMENT IS TO BE REMOVED AS PART OF PROJECT DEMOLITION. ANY DAMAGE OR POTENTIAL DAMAGE TO SURVEY CONTROL MONUMENTS TO REMAIN SHALL IMMEDIATELY BE REPORTED TO THE ENGINEER. ANY DAMAGE TO SURVEY CONTROL MONUMENTS, SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
4. ALL CONSTRUCTION STAKING IS RESPONSIBILITY OF CONTRACTOR AND INCIDENTAL TO OTHER ITEMS OF WORK. GUIDANCE FOR CONSTRUCTION STAKING CAN BE FOUND IN SECTION 50-07 OF THE GENERAL PROVISIONS.
5. CONTRACTOR SHALL FIELD VERIFY COORDINATE AND ELEVATIONS OF ALL SURVEY CONTROL MONUMENTS TO BE USED PRIOR TO BEGINNING CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL PROVIDE COORDINATE AND ELEVATION INFORMATION FOR CONTRACTOR'S CONTROL POINTS TO THE RPR FOR APPROVAL.

LEGEND

- WORK AREA
- BENCHMARK
- CONTROL POINT

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

200 0 200 400
Scale Feet

No.	Revision	Date

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CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

SURVEY CONTROL AND GEOMETRIC LAYOUT PLAN

Design: MMW	CAD File: 62230566G09.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. G10 11 of 104

CAD File: 62230566G09.dwg

CONTROL POINT #102
SET 5/8" IRON BAR
RM 1 - EAST 11.20' TO WEST EDGE OF CONCRETE SIGN BASE (E02F)
RM 2 - NORTH 7.20' TO SOUTH EDGE OF PAVEMENT
RM 3 - NNW 30.30' TO CENTER OF BLUE EDGE LIGHT

NORTHING: 1134433.2880 / EASTING: 2729257.9645 / ELEVATION: 1008.05

CONTROL POINT #103
SET 5/8" IRON BAR
RM 1 - WEST 5.10' TO EAST EDGE OF PAVEMENT TAXIWAY ECHO
RM 2 - EAST 6.75' TO WEST EDGE OF CONCRETE SIGN BASE (E10E)
RM 3 - ESE 22.95' TO CENTER OF BLUE EDGE LIGHT

NORTHING: 1134914.3810 / EASTING: 2729580.3195 / ELEVATION: 1011.47

CONTROL POINT #104
SET 5/8" IRON BAR
RM 1 - SOUTH 8.40' TO NORTH FACE OF CONCRETE SIGN BASE (E14E)
RM 2 - EAST 17.25' TO WEST EDGE OF PAVEMENT TAXIWAY ECHO
RM 3 - NE 44.62' TO CENTER OF BLUE EDGE LIGHT

NORTHING: 1135438.7560 / EASTING: 2729502.9635 / ELEVATION: 1012.50

CONTROL POINT #105
SET 5/8" IRON BAR
RM 1 - NORTH 2.35' TO SE CORNER OF CONCRETE SIGN BASE (E20F)
RM 2 - WEST 20.28' TO EAST EDGE OF PAVEMENT TAXIWAY FOXTROT
RM 3 - WSW 58.25' TO CENTER OF BLUE EDGE LIGHT

NORTHING: 1135905.2385 / EASTING: 2729544.8135 / ELEVATION: 1012.55

CONTROL POINT #106
SET 5/8" IRON BAR
RM 1 - WEST 142.00' TO CENTER OF BLUE EDGE LIGHT
RM 2 - EAST 10.35' TO WEST EDGE OF PAVEMENT TAXIWAY ECHO
RM 3 - NORTH 180.00' TO SOUTH EDGE OF CONCRETE SIGN BASE (E9-27)

NORTHING: 1136749.2665 / EASTING: 2729830.4260 / ELEVATION: 1013.41

CONTROL POINT #107
SET 5/8" IRON BAR
RM 1 - NORTH 17.20' TO SOUTH EDGE OF PAVEMENT TAXIWAY FOXTROT
RM 2 - WNW 23.90' TO NE CORNER OF CONCRETE SIGN BASE (E)
RM 3 - WSW 23.55' TO SOUTHEAST CORNER OF CONCRETE SIGN BASE (E)

NORTHING: 1143778.0060 / EASTING: 2731364.2685 / ELEVATION: 972.51

CONTROL POINT #108
SET 5/8" IRON BAR
RM 1 - NW 4.50' TO SE CORNER OF CONCRETE SIGN BASE (E2)
RM 2 - EAST 16.75' TO WEST EDGE OF CONCRETE PAD AROUND MANHOLE
RM 3 - SSE 16.15' TO NW CORNER OF CONCRETE PAD AROUND PULL BOXES

NORTHING: 1143236.9145 / EASTING: 2731298.4265 / ELEVATION: 975.08

CONTROL POINT #109
SET 5/8" IRON BAR
RM 1 - SSW 4.85' TO NE CORNER OF CONCRETE SIGN BASE (E3)
RM 2 - WEST 13.35' TO EAST EDGE OF PAVEMENT TAXIWAY ECHO
RM 3 - NW 40.40' TO CENTER OF BLUE EDGE LIGHT

NORTHING: 1142605.0990 / EASTING: 2731348.7910 / ELEVATION: 979.17

CONTROL POINT #110
SET 5/8" IRON BAR
RM 1 - SE 21.30' TO CENTER OF ELECTRIC MANHOLE
RM 2 - EAST 6.70' TO WEST EDGE OF PAVEMENT TAXIWAY ECHO
RM 3 - ENE 23.20' TO CENTER OF BLUE EDGE LIGHT

NORTHING: 1141995.8690 / EASTING: 2731057.6385 / ELEVATION: 982.41

CONTROL POINT #111
SET 5/8" IRON BAR
RM 1 - WEST 7.35' TO EAST EDGE OF PAVEMENT TAXIWAY ECHO
RM 2 - ESE 58.30' TO NW CORNER OF CONCRETE SIGN BASE (19L-1R E4)
RM 3 - NNE 59.65' TO CENTER OF BLUE EDGE LIGHT

NORTHING: 1141311.3485 / EASTING: 2731070.9660 / ELEVATION: 987.17

CONTROL POINT #112
SET 5/8" IRON BAR
RM 1 - WNW 51.90' TO SE CORNER OF CONCRETE SIGN BASE (E5)
RM 2 - EAST 16.90' TO WEST EDGE OF PAVEMENT TAXIWAY ECHO
RM 3 - SW 75.30' TO NE CORNER OF CONCRETE PAD AROUND ELECTRIC MANHOLE

NORTHING: 1140757.1570 / EASTING: 2730732.8150 / ELEVATION: 990.32

CONTROL POINT #113
SET 5/8" IRON BAR
RM 1 - WEST 11.20' TO EAST EDGE OF PAVEMENT TAXIWAY ECHO
RM 2 - NNE 98.85' TO CENTER OF EAST MOST BLUE EDGE LIGHT
RM 3 - SE 63.90' TO CENTER OF MANHOLE LID

NORTHING: 1140299.3490 / EASTING: 2730834.0500 / ELEVATION: 994.37

CONTROL POINT #114
SET 5/8" IRON BAR
RM 1 - SE 17.05' TO NW CORNER OF CONCRETE PAD AROUND ELECTRIC MANHOLE
RM 2 - EAST 7.25' TO WEST EDGE OF PAVEMENT TAXIWAY ECHO
RM 3 - ENE 23.25' TO CENTER OF BLUE EDGE LIGHT

NORTHING: 1139513.8090 / EASTING: 2730480.7795 / ELEVATION: 1000.53

CONTROL POINT #115
SET 5/8" IRON BAR ON THE EAST SIDE OF TAXIWAY ECHO SOUTH OF KILO
RM 1 - EAST 43.40' TO SW CORNER OF CONCRETE SIGN BASE (19L-1R K)
RM 2 - SE 40.30' TO NW CORNER OF GRATE INLET
RM 3 - WEST 17.05' TO EAST EDGE OF PAVEMENT TAXIWAY ECHO

NORTHING: 1138919.7610 / EASTING: 2730529.6330 / ELEVATION: 1005.05

CONTROL POINT #116
SET 5/8" IRON BAR
RM 1 - WEST 22.75' TO NE CORNER OF CONCRETE SIGN BASE (E)
RM 2 - NW 66.25' TO SE CORNER OF CONCRETE SIGN BASE (F)
RM 3 - SW 54.40' TO CENTER OF ELECTRIC MANHOLE

NORTHING: 1138095.7540 / EASTING: 2730110.2355 / ELEVATION: 1011.04

BENCHMARK #102
SET CHISELED BOX ON NW CORNER OF CONCRETE SIGN BASE (E08F)
ELEVATION: 1008.21

BENCHMARK #103
SET CHISELED BOX ON NW CORNER OF CONCRETE SIGN BASE (E10E)
ELEVATION: 1011.47

BENCHMARK #104
SET CHISELED BOX ON NE CORNER OF CONCRETE SIGN BASE (E14E)
ELEVATION: 1013.06

BENCHMARK #105
SET CHISELED BOX ON NW CORNER OF CONCRETE SIGN BASE (E19F)
ELEVATION: 1013.48

BENCHMARK #106
SET CHISELED BOX ON SE CORNER OF CONCRETE SIGN BASE (E9-27)
ELEVATION: 1013.53

BENCHMARK #107
SET CHISELED BOX ON SE CORNER OF CONCRETE SIGN BASE (E)
ELEVATION: 973.12

BENCHMARK #108
SET CHISELED BOX ON SE CORNER OF CONCRETE SIGN BASE (E2)
ELEVATION: 975.34

BENCHMARK #109
SET CHISELED BOX ON NE CORNER OF CONCRETE SIGN BASE (E3)
ELEVATION: 979.70

BENCHMARK #110
SET CHISELED BOX ON NE CORNER OF CONCRETE SIGN BASE (E4)
ELEVATION: 983.42

BENCHMARK #112
SET CHISELED BOX ON SE CORNER OF CONCRETE SIGN BASE (E5)
ELEVATION: 989.95

BENCHMARK #113
SET CHISELED BOX ON NW CORNER OF CONCRETE SIGN BASE (E5)
ELEVATION: 994.90

BENCHMARK #114
SET CHISELED BOX ON NE CORNER OF CONCRETE PAD AROUND ELECTRIC MANHOLE
ELEVATION: 999.33

BENCHMARK #115
SET CHISELED BOX ON SW CORNER OF CONCRETE SIGN BASE (19L-1R K)
ELEVATION: 1005.34

BENCHMARK #116
SET CHISELED BOX ON NE CORNER OF CONCRETE SIGN BASE (←E→)
ELEVATION: 1011.36

STATION EQUATIONS

N 1134480.28	N 1143661.57
E 2729383.33	E 2731515.74
100+97.07, TWY E = 80+00.00, TWY E-8	195+22.74, TWY E = 10+00.00, TWY E-1
N 1134780.54	N 1135693.82
E 2729453.07	E 2729391.08
104+05.32, TWY E = 70+00.00, TWY E-7	212.80.89, TWY F = 57+33.00, TWY E-6
N 1135633.41	N 1137696.36
E 2729651.16	E 2729856.18
112+80.89, TWY E = 60+00, TWY E-6	233+36.74, TWY F = 314+28.97, TWY C
N 1137667.01	N 1137990.08
E 2730123.47	E 2729924.40
133+68.62, TWY E = 316+97.87, TWY C	236+38.28, TWY F = 410+28.97, TWY D
N 1137960.73	N 1139131.63
E 2730191.69	E 2730189.53
136+70.16, TWY E = 412+97.87, TWY D	248+10.21, TWY F = 52+33.00, TWY K
N 1139071.22	N 1140641.43
E 2730449.61	E 2730540.19
148+10.21, TWY E = 55+00.00, TWY K	263+60.20, TWY F = 47+33.00, TWY E-5
N 1140581.02	N 1141615.35
E 2730800.27	E 2730766.39
163+60.20, TWY E = 50+00.00, TWY E-5	273+60.05, TWY F = 37+33.00, TWY E-4
N 1141554.95	N 1142518.66
E 2731026.47	E 2730976.19
173+60.05, TWY E = 40+00.00, TWY E-4	282+87.40, TWY F = 27+33.00, TWY E-3
N 1142458.26	N 1137753.30
E 2731236.27	E 2729337.65
182+87.40, TWY E = 30+00.00, TWY E-3	10+00.00, TWY J = 309+07.33, TWY C
N 1143362.04	N 1138050.92
E 2731446.17	E 2729370.33
192+15.24, TWY E = 20+00.00, TWY E-2	12+99.42, TWY J = 404+71.58, TWY D

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
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CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

SURVEY CONTROL AND GEOMETRIC LAYOUT NOTES

Design: MMW	CAD File:62230566G09.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. G11 12 of 104

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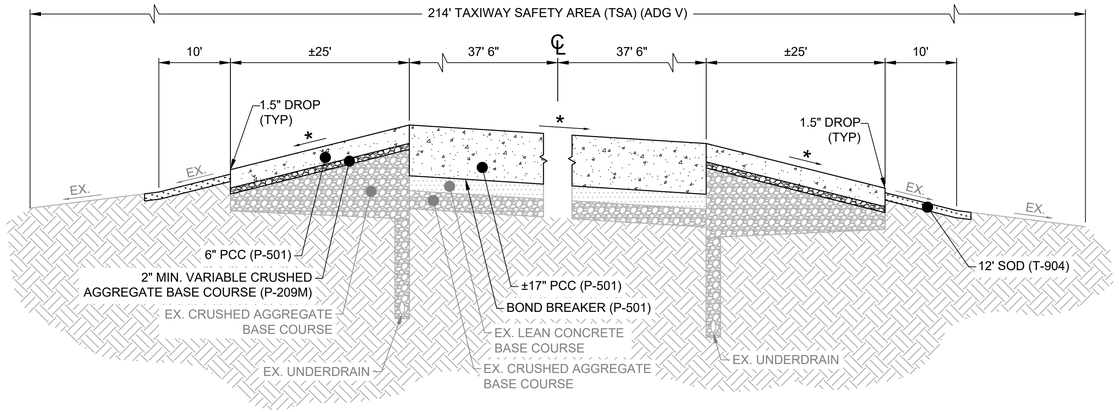
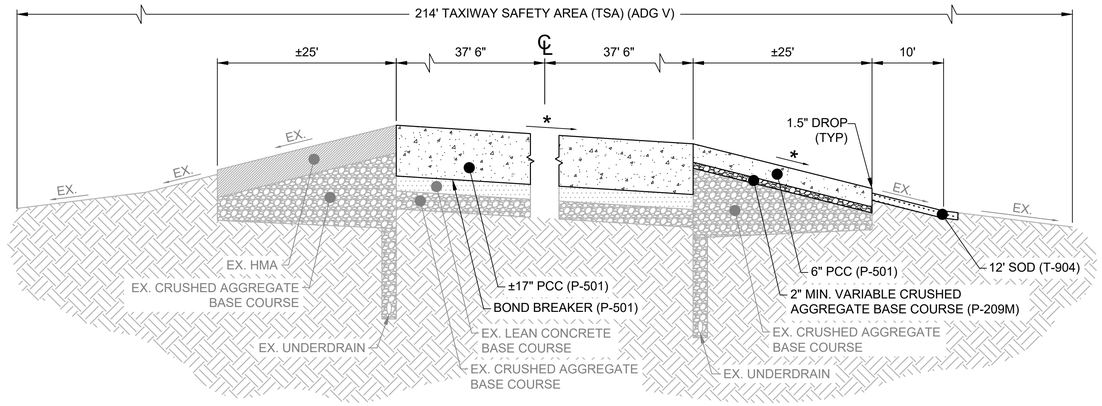


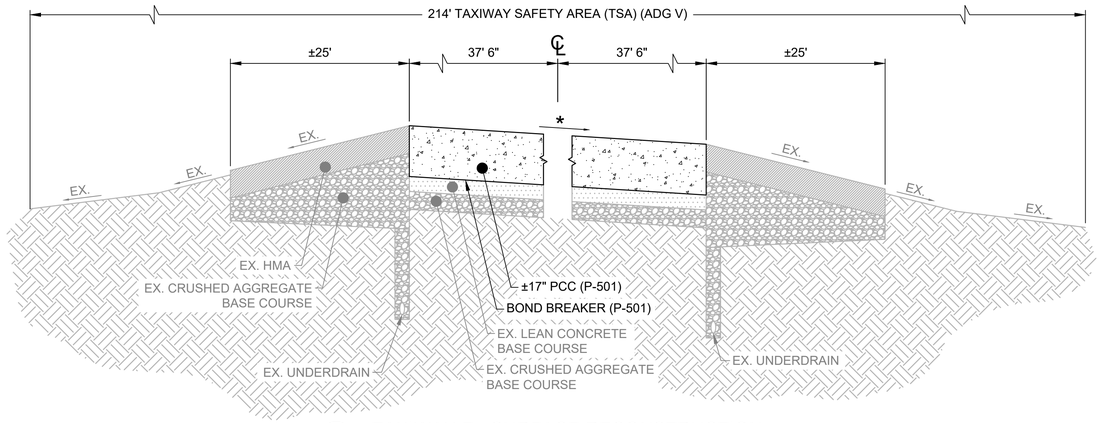
1 TAXIWAY E - SURFACE RECONSTRUCTION
STA. 138+80 TO STA. 190+14 1" = 10' (5:1 VERTICAL EXAGGERATION)

*REFER TO CROSS SECTIONS PLANS FOR SLOPE.



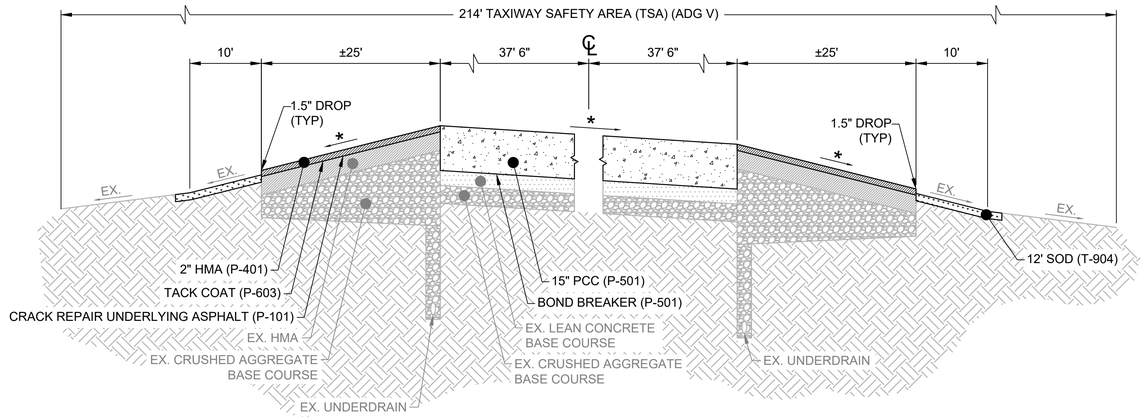
2 TAXIWAY E - SURFACE RECONSTRUCTION
STA. 106+05 TO STA. 110+17 1" = 10' (5:1 VERTICAL EXAGGERATION)

*REFER TO CROSS SECTIONS PLANS FOR SLOPE.



3 TAXIWAY E - SURFACE RECONSTRUCTION
STA.105+83 TO STA. 106+05
STA.110+17 TO STA. 125+40
STA.190+14 TO STA. 190+38
1" = 10' (5:1 VERTICAL EXAGGERATION)

*REFER TO CROSS SECTIONS PLANS FOR SLOPE.



4 TAXIWAY J - SURFACE RECONSTRUCTION
1" = 10' (5:1 VERTICAL EXAGGERATION)

*REFER TO CROSS SECTIONS PLANS FOR SLOPE.

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CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

TYPICAL SECTIONS

Design: MMW	CAD File: 62230566G12.dwg	Aviation Project No. 62230566
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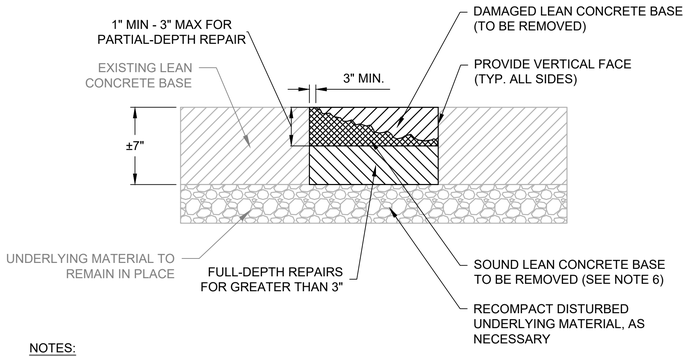


NOTES:

1. CONTRACTOR SHALL REMOVE PCC PLACEMENT IN A MANNER WHICH MINIMIZES DAMAGE TO LEAN CONCRETE BASE AND OTHER UNDERLYING MATERIALS. DAMAGE TO LEAN CONCRETE BASE OR OTHER UNDERLYING MATERIAL CAUSED BY THE CONTRACTOR SHALL BE REPAIRED PER THIS DETAIL AT THE EXPENSE OF THE CONTRACTOR.

2. UPON COMPLETION OF PCC PAVEMENT REMOVAL ALL AREAS OF DAMAGED LEAN CONCRETE BASE SHALL BE REPAIRED PER SPECIFICATION P-101.

3. THE RPR WILL DETERMINE LEAN CONCRETE BASE REPAIR LOCATIONS AND CLEARLY MARK REPAIR LIMITS. THE RPR WILL DETERMINE WHETHER REPAIR SHALL BE PARTIAL-DEPTH OR FULL-DEPTH.

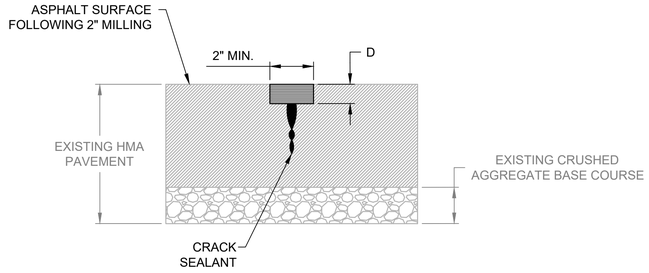
4. PARTIAL-DEPTH REPAIRS SHALL BE COMPLETED WHERE LEAN CONCRETE BASE IS DAMAGED TO A MAXIMUM DEPTH OF 3". PARTIAL-DEPTH REPAIRS SHALL BE COMPLETED WITH PCC MATERIAL PER SPECIFICATION P-610, CONCRETE FOR MISCELLANEOUS STRUCTURES..

5. FULL-DEPTH REPAIRS SHALL BE COMPLETED WHERE LEAN CONCRETE BASE IS DAMAGED TO A DEPTH OF OVER 3" AND AT LOCATIONS WHERE EXISTING IN-PAVEMENT LIGHT CANS ARE REMOVED, RELOCATED OR NOT REINSTALLED. FULL-DEPTH REPAIRS SHALL BE COMPLETED WITH PCC MATERIAL PER SPECIFICATION P-610, CONCRETE FOR MISCELLANEOUS STRUCTURES.

6. REMOVAL OF LEAN CONCRETE BASE SHALL BE COMPLETED BY COLD MILLING, CHIPPING WITH LIGHT JACKHAMMERS, OR OTHER METHOD APPROVED BY THE ENGINEER. A CLEAN VERTICAL FACE SHALL BE PREPARED ON ALL SIDES OF AREA TO BE REPAIRED PRIOR TO PLACEMENT OF REPAIR MATERIAL. REMOVAL OF LEAN CONCRETE BASE SHALL EXTEND 3" INTO SOUND MATERIAL ON ALL SIDES OF REPAIR AREAS.

7. FULL-DEPTH LEAN CONCRETE BASE REPAIRS SHALL BE COMPLETED IMMEDIATELY AFTER REMOVAL OF DAMAGED LEAN CONCRETE BASE TO PREVENT WATER AND CONSTRUCTION DEBRIS FROM ENTERING THE UNDERLYING CRUSHED AGGREGATE BASE.

1 LEAN CONCRETE BASE REPAIR
NOT TO SCALE



NOTES:

1. DEPENDENT ON SEALANT TYPE. USE MANUFACTURER'S RECOMMENDATIONS FOR RESERVOIR DIMENSIONS (W x D) AND FOR BACKER ROD MATERIAL WHEN REQUIRED.

WEATHER AND TEMPERATURE REQUIREMENTS:

- DO NOT BEGIN CRACK REPAIR DURING INCLEMENT WEATHER
- THE PAVEMENT TEMPERATURE SHOULD BE 50° F AND RISING OR MEET THE MANUFACTURER'S RECOMMENDATIONS AT THE TIME OF APPLICATION OF THE CRACK SEALING MATERIAL.
- DO NOT APPLY SEALANT IF MOISTURE IS OBSERVED IN THE CRACK.

PREPARATION:
TO CHOOSE SEALANT:

- CONSIDER THE GEOGRAPHIC AREA, CLIMATE, AND PAST PERFORMANCE OF THE SEALANT.
- HOT-APPLIED SEALANTS MUST MEET THE REQUIREMENTS OF ASTM D6690.

REPAIR PROCEDURE:
USE THIS PROCEDURE TO REPAIR CRACKS LESS THAN 1 INCH IN WIDTH IN FLEXIBLE PAVEMENTS. MINIMUM REQUIRED REPAIR WIDTH IS 2 INCHES IN WIDTH.

1. MARK THE LIMITS OF THE AREA OF CRACK REPAIR.

2. USE AN AIR COMPRESSOR WITH AN OPERABLE OIL AND WATER TRAP TO CLEAN ALL CRACKS WITH COMPRESSED HOT AIR.

3. IF NECESSARY, SAW OR ROUT THE CRACKS TO THE REQUIRED WIDTH AND DEPTH. USE THE SEALANT MANUFACTURER'S SPECIFICATIONS TO DETERMINE THE SEALANT RESERVOIR DIMENSIONS (W X D).

4. INSPECT THE CRACKS FOR PROPER WIDTH, DEPTH, ALIGNMENT, AND PREPARATION. MAKE SURE THE CRACK SURFACE FACES ARE DRY.

5. TO OBTAIN THE WIDTH AND DEPTH RATIO REQUIRED BY THE SEALANT MANUFACTURER'S SPECIFICATIONS MAY REQUIRE INSTALLATION OF BACKER ROD. MAKE SURE THE BACKER ROD:
   A. MEETS THE REQUIREMENTS OF ASTM D5249
   B. IS COMPATIBLE WITH THE SEALANT
   C. IS 25% LARGER IN DIAMETER THAN THE WIDTH OF THE SEALANT RESERVOIR.

6. APPLY THE SEALANT UNIFORMLY FROM THE BOTTOM TO THE TOP OF THE CRACK AVOIDING VOIDS OR ENTRAPPING AIR.

7. MAKE SURE THE SURFACE OF THE SEALANT REMAINS 1/8 INCH BELOW THE EXISTING PAVEMENT SURFACE.

2 CRACK REPAIR
NOT TO SCALE

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CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

PAVEMENT REPAIR DETAILS

Design: MMW	CAD File: 62230566G12.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. G13 14 of 104

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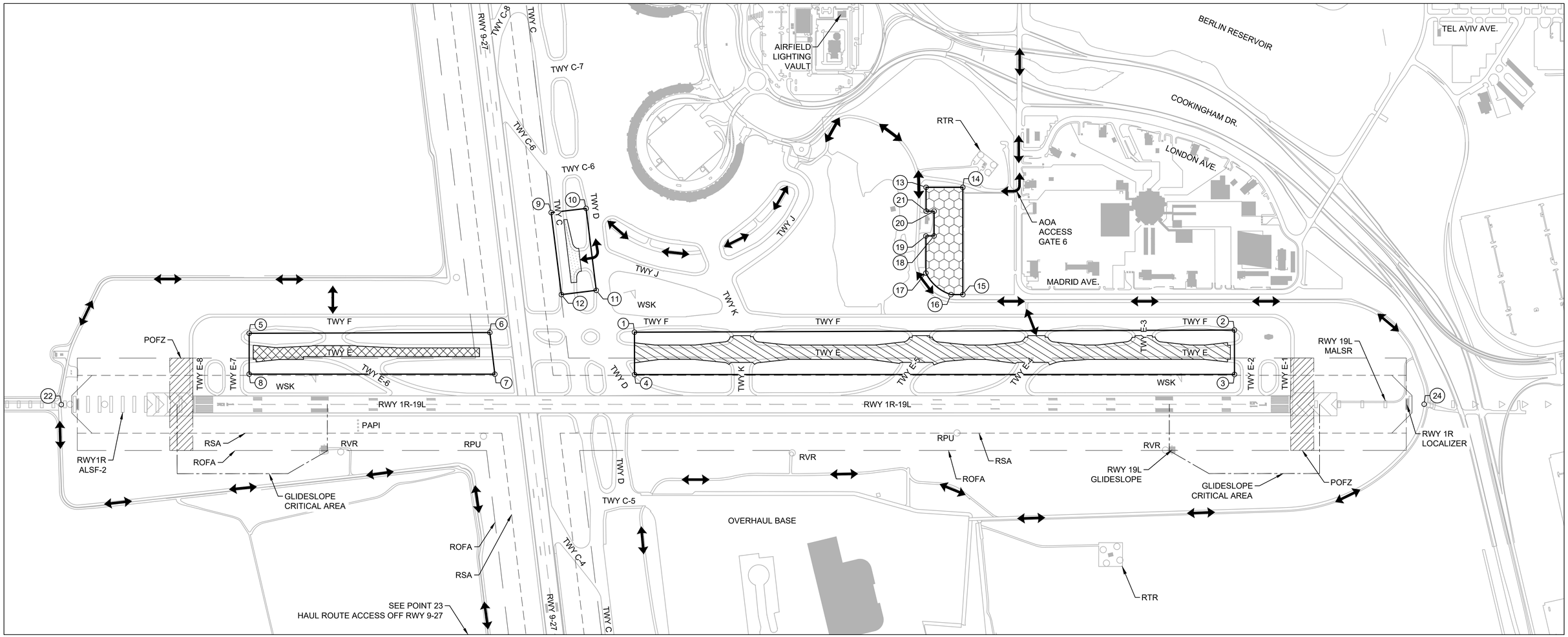

OE/AAA ANALYSIS OF CONSTRUCTION PHASING					
POINT	LATITUDE	LONGITUDE	SITE ELEVATION (AMSL)	STRUCTURE HEIGHT	DESCRIPTION
1	N39° 17' 31.42"	W94° 42' 29.24"	1010'	20'	WORK AREA A
2	N39° 18' 21.47"	W94° 42' 14.67"	977'	20'	WORK AREA A
3	N39° 18' 20.62"	W94° 42' 09.91"	975'	20'	WORK AREA A
4	N39° 17' 30.62"	W94° 42' 24.69"	1013'	20'	WORK AREA A
5	N39° 16' 59.29"	W94° 42' 38.62"	1009'	20'	WORK AREA B
6	N39° 17' 19.36"	W94° 42' 32.77"	1014'	20'	WORK AREA B
7	N39° 17' 18.98"	W94° 42' 28.17"	1013'	20'	WORK AREA B
8	N39° 16' 58.50"	W94° 42' 34.24"	1012'	20'	WORK AREA B
9	N39° 17' 26.77"	W94° 42' 44.12"	1014'	20'	WORK AREA C
10	N39° 17' 29.76"	W94° 42' 43.71"	1006'	20'	WORK AREA C
11	N39° 17' 29.04"	W94° 42' 34.67"	1012'	20'	WORK AREA C
12	N39° 17' 26.05"	W94° 42' 35.07"	1015'	20'	WORK AREA C

OE/AAA ANALYSIS OF CONSTRUCTION PHASING					
POINT	LATITUDE	LONGITUDE	SITE ELEVATION (AMSL)	STRUCTURE HEIGHT	DESCRIPTION
13	N39° 17' 58.50"	W94° 42' 37.59"	974'	75'	STAGING AREA
14	N39° 18' 01.57"	W94° 42' 36.68"	984'	75'	STAGING AREA
15	N39° 17' 59.51"	W94° 42' 25.17"	995'	75'	STAGING AREA
16	N39° 17' 58.52"	W94° 42' 25.47"	994'	75'	STAGING AREA
17	N39° 17' 56.84"	W94° 42' 28.39"	993'	75'	STAGING AREA
18	N39° 17' 58.24"	W94° 42' 32.17"	981'	75'	STAGING AREA
19	N39° 17' 57.55"	W94° 42' 32.38"	979'	75'	STAGING AREA
20	N39° 17' 58.72"	W94° 42' 34.83"	976'	75'	STAGING AREA
21	N39° 17' 58.05"	W94° 42' 35.03"	975'	75'	STAGING AREA
22	N39° 16' 42.26"	W94° 42' 35.60"	992'	20'	HAUL ROUTE
23	N39° 17' 15.15"	W94° 41' 12.38"	1008'	20'	HAUL ROUTE
24	N39° 18' 35.86"	W94° 42' 02.03"	949'	20'	HAUL ROUTE

OE AAA (FAA 7460) NOTES:

1. A TIME PERIOD OF 45-60 DAYS IS REQUIRED TO PROCESS FAA FORM 7460. DUE TO THIS LEAD TIME THE ENGINEER HAS SUBMITTED THE POINTS OF INTEREST AS SHOWN ON THIS SHEET FOR FAA EVALUATION.
2. THE CONTRACTOR SHALL REVIEW THE LOCATION AND THE STRUCTURE HEIGHT OF THE SUBMITTED POINTS OF INTEREST AND NOTIFY THE ENGINEER IN WRITING OF ANY DEVIATIONS REQUIRED FOR CONSTRUCTION. THE ENGINEER WILL INCORPORATE ANY DEVIATIONS INTO A REVISED 7460 SUBMITTAL FOR FAA REVIEW.
3. CONSTRUCTION CANNOT BEGIN UNTIL A DETERMINATION IS RECEIVED FROM THE FAA. A STATUS UPDATE OF THE FAA'S REVIEW WILL BE DISCUSSED AT THE PRE-CONSTRUCTION CONFERENCE.

LEGEND

- WORK AREA A LIMITS
- WORK AREA B LIMITS
- WORK AREA C LIMITS
- STAGING AREA

STATE OF MISSOURI — LYNETTE MELLETT — NUMBER PE-2015000016 — PROFESSIONAL ENGINEER

400 0 400 800
Scale Feet

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CITY OF FOUNTAINS HEART OF THE NATION — KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

OE-AAA (FAA 7460) ANALYSIS POINTS

Design: MMW	CAD File:62230566G14.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. G14 15 of 104

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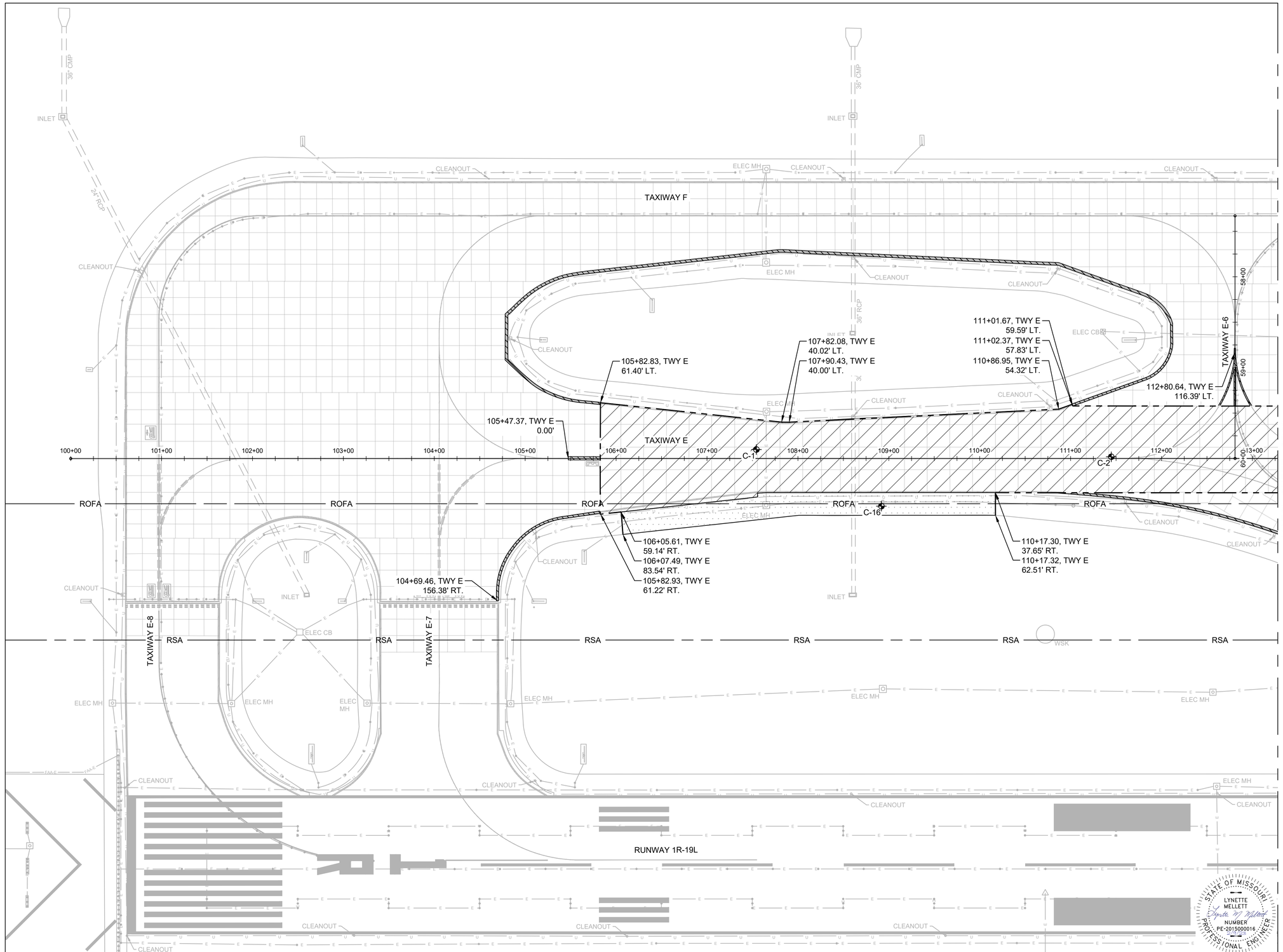

NOTES:

1. THE INFORMATION SHOWN ON THIS DRAWING CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. UTILITIES INCLUDE BUT ARE NOT LIMITED TO ELECTRICAL, STORM, SANITARY, GAS AND COMMUNICATIONS.
2. PRIOR TO PAVEMENT REMOVAL, CONTRACTOR SHALL SAW CUT SURFACE RECONSTRUCTION EDGES OF PAVEMENT (TO DEPTH OF TOP PCC LAYER) TO PROVIDE CLEAN VERTICAL FACE.
3. ANY DAMAGE TO EXISTING PAVEMENT, ELECTRICAL SYSTEM, LIGHTING, SIGNAGE, UTILITIES, UNDERDRAIN SYSTEM OR PAVEMENT MARKING TO REMAIN SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE. DAMAGE TO THE UNDERLYING LEAN CONCRETE BASE AND ASPHALT PAVEMENT SHALL BE REPAIRED IN ACCORDANCE WITH DETAIL 1 AND 2 ON PLAN SHEET G13.
4. TEMPORARY EROSION CONTROL DEVICES SHALL BE IN PLACE AND APPROVED BY THE RPR PRIOR TO DEMOLITION ACTIVITIES. REFER TO EROSION CONTROL PLANS.
5. REFER TO ELECTRICAL DEMOLITION PLANS FOR INFORMATION REGARDING ELECTRICAL INFRASTRUCTURE.
6. REMOVE EXISTING UNDERDRAIN CLEANOUT STRUCTURE WITHIN PROJECT LIMITS. EXISTING UNDERDRAIN VERTICAL RISER BETWEEN CLEANOUT AND DRAINAGE PIPE CONNECTION SHALL BE EXPOSED AND REMAIN BELOW PCCP/HMA SURFACE PAVEMENT. INSTALL COVER/EROSION CONTROL TO PROTECT UNDERDRAIN VERTICAL RISER TO REMAIN FROM DEMOLITION AND GRADING OPERATIONS AND INFILTRATION OF DEBRIS AND SEDIMENT. UNDERDRAIN CLEANOUT STRUCTURE REMOVAL AND PROTECTION SHALL BE SUBSIDIARY TO PAVEMENT REMOVAL PER SPECIFICATION P-101, PREPARATION/ REMOVAL OF EXISTING PAVEMENTS.
7. PERMANENT PAVEMENT MARKING REMOVAL COST SHALL BE PER SPECIFICATION P-620, RUNWAY AND TAXIWAY MARKING. PAVEMENT MARKING REMOVAL AND REMARKING OUTSIDE OF THE BARRICADE LIMITS FOR EACH WORK AREA SHALL NOT BE REMOVED UNTIL TEMPORARY MARKINGS ARE TO BE INSTALLED AT THE END OF EACH PHASE. THE CONTRACTOR SHALL COORDINATE WITH AIRPORT OPERATIONS FOR THE CLOSURE OF ADJACENT TAXIWAY TO COMPLETE REQUIRED PAVEMENT MARKING WORK.

LEGEND

EX. SEC. 1 (1 CD09) EX. SEC. 4 (4 CD09)
EX. SEC. 2 (2 CD09) EX. SEC. 5 (5 CD09)
EX. SEC. 3 (3 CD09) STRUCTURE REMOVAL
MARKING REMOVAL
SAW-CUT VERTICAL FACE
RSA — RUNWAY SAFETY AREA
ROFA — RUNWAY OBJECT FREE AREA
C-XXB BORING LOCATION C-XX CORING LOCATION

EXISTING UTILITIES

ELECTRICAL LINE EXISTING PIPE
FAA ELEC. LINE COMM LINE
UNDERDRAIN GAS LINE

50 0 50 100
Scale Feet

KEY MAP

STATE OF MISSOURI
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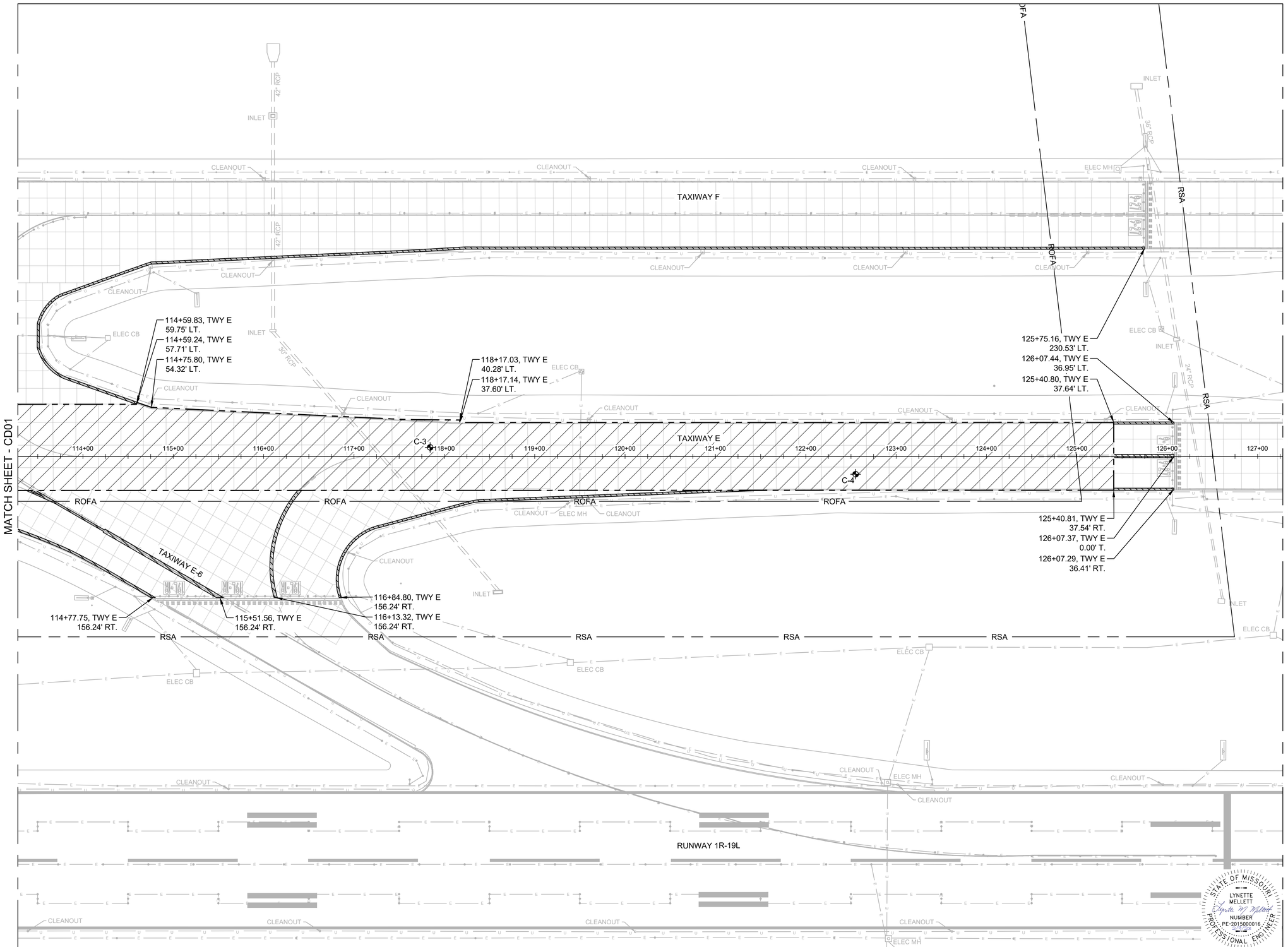
TAXIWAY E AND TAXIWAY J REHABILITATION

DEMOLITION PLAN

Design: MMW	CAD File: 62230566CD01.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CD01 16 of 104

CAD File: 62230566CD01.dwg



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- EX. SEC. 3 (3 CD09)
- EX. SEC. 4 (4 CD09)
- EX. SEC. 5 (5 CD09)
- STRUCTURE REMOVAL
- MARKING REMOVAL
- SAW-CUT VERTICAL FACE
- RSA — RUNWAY SAFETY AREA
- ROFA — RUNWAY OBJECT FREE AREA
- C-XXB BORING LOCATION
- C-XX CORING LOCATION

EXISTING UTILITIES

- ELECTRICAL LINE
- FAA-E FAA ELEC. LINE
- U UNDERDRAIN
- EXISTING PIPE
- COMM COMM LINE
- G GAS LINE

N

50 0 50 100
Scale Feet

KEY MAP

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT
KCI

HNTB
715 Kirk Drive
Kansas City, MO 64105
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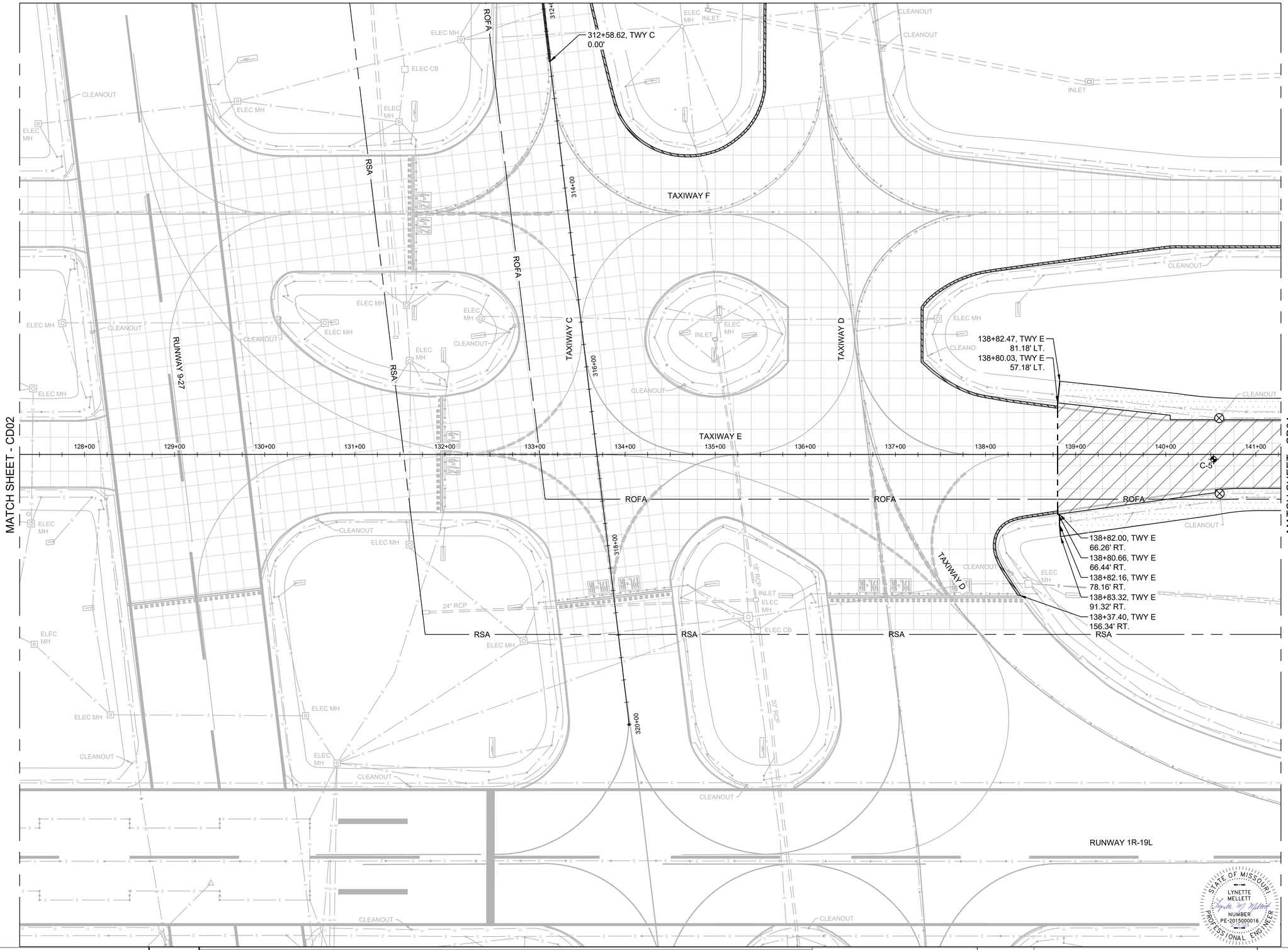
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

DEMOLITION PLAN

Design: MMW	CAD File: 62230566CD01.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CD02 17 of 104

CAD File: 62230566CD01.dwg



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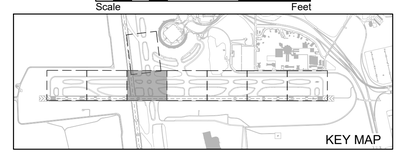
Scale Feet



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TAXIWAY E AND TAXIWAY J REHABILITATION

DEMOLITION PLAN

Design: MMW	CAD File: 62230566CD01.dwg	Aviation Project No. 62230566	
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CD03	18 of 104

CAD File: 62230566CD01.dwg

MATCH SHEET - CD03

MATCH SHEET - CD05

TAXIWAY F

TAXIWAY E

TAXIWAY K

RUNWAY 1R-19L

148+10.24, TWY E
148.19' LT.

147+35.23, TWY E
143.47' LT.
147+09.42, TWY E
133.39' LT.
147+35.12, TWY E
134.39' LT.

148+85.34, TWY E
143.34' LT.
149+10.39, TWY E
134.33' LT.
148+90.79, TWY E
135.00' LT.
148+85.34, TWY E
133.73' LT.

147+17.35, TWY E
87.81' RT.
146+99.41, TWY E
106.09' RT.
147+45.84, TWY E
156.18' RT.
148+10.05, TWY E
156.18' RT.

149+03.42, TWY E
87.45' RT.
149+21.33, TWY E
104.35' RT.
148+74.19, TWY E
156.18' RT.

ROFA

RSA

C-6

C-7

C-8

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50 0 50 100
Scale Feet

KEY MAP

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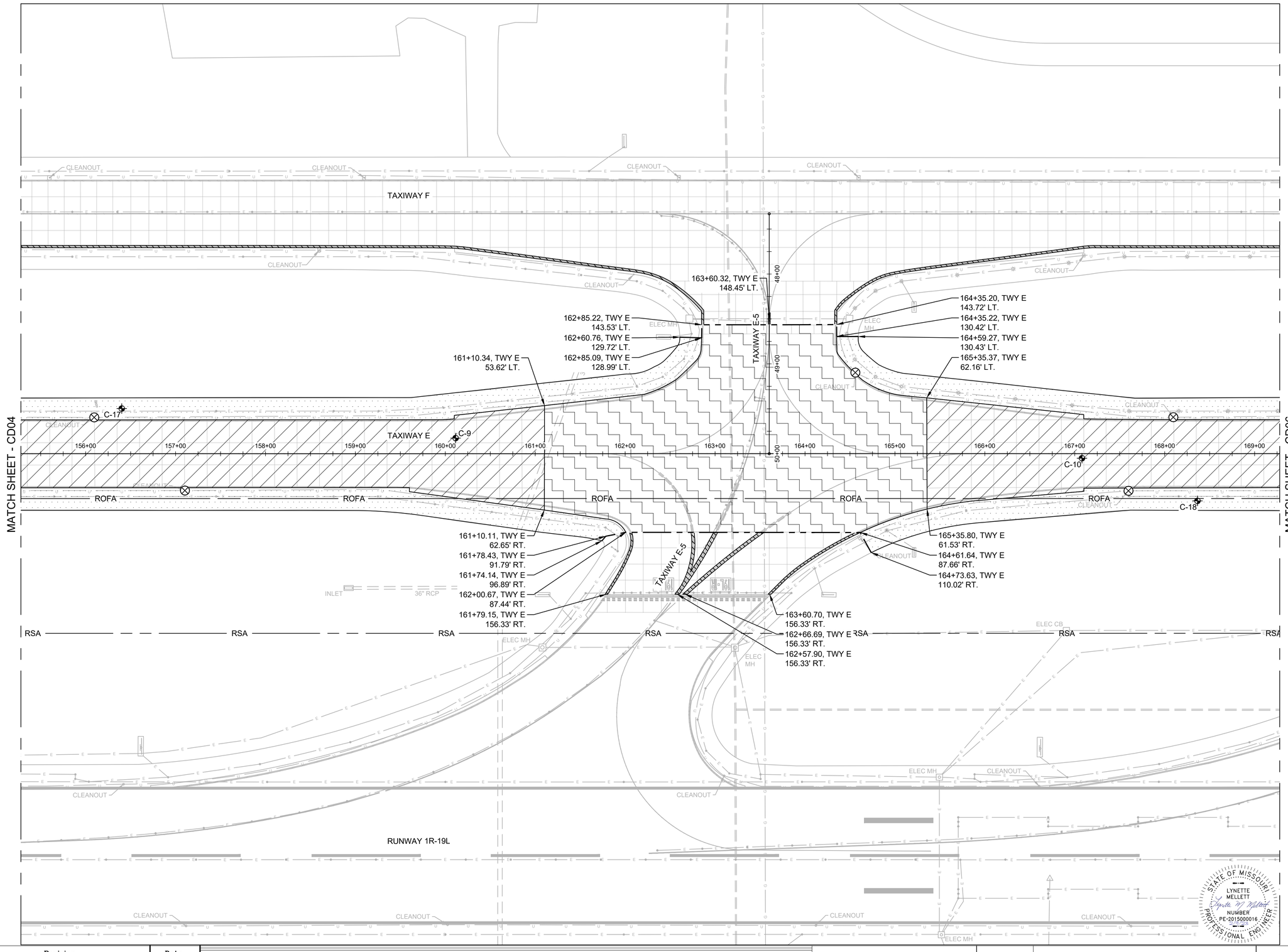
Design: MMW	CAD File: 62230566CD01.dwg	Aviation Project No.	62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	CD04 19 of 104

CAD File: 62230566CD01.dwg



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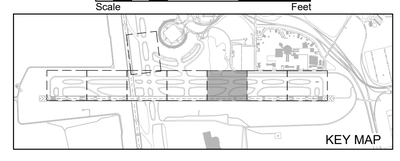

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DEMOLITION PLAN

Design: MMW	CAD File: 62230566CD01.dwg	Aviation Project No.	62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	CD05 20 of 104

CAD File: 62230566CD01.dwg

MATCH SHEET - CD05

MATCH SHEET - CD07

TAXIWAY F

TAXIWAY E

TAXIWAY E-4

TAXIWAY E-3

TAXIWAY E-4

RUNWAY 1R-19L

173+59.91, TWY E
149.92' LT.

174+35.10, TWY E
143.50' LT.

174+35.11, TWY E
130.33' LT.

174+49.52, TWY E
130.49' LT.

174+59.39, TWY E
128.61' LT.

175+35.36, TWY E
61.84' LT.

182+87.65, TWY E
147.31' LT.

182+12.36, TWY E
143.54' LT.

181+87.84, TWY E
129.51' LT.

182+12.50, TWY E
128.55' LT.

172+85.08, TWY E
143.48' LT.

172+60.67, TWY E
130.44' LT.

172+85.03, TWY E
129.92' LT.

171+10.11, TWY E
54.28' LT.

171+09.97, TWY E
62.85' RT.

171+76.94, TWY E
96.08' RT.

171+91.45, TWY E
90.03' RT.

172+00.48, TWY E
87.45' RT.

171+79.55, TWY E
156.25' RT.

175+35.29, TWY E
61.53' RT.

174+61.37, TWY E
87.51' RT.

174+73.96, TWY E
109.53' RT.

173+60.75, TWY E
156.25' RT.

172+67.46, TWY E
156.25' RT.

172+57.62, TWY E
156.25' RT.

C-11 C-12 C-13 C-14 C-19

ROFA RSA

CLEANOUT ELEC MH ELEC MH TRANS ELEC MH ELEC CB INLET INLET 30" RCP 36" RCP

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Scale Feet

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Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	CD06 21 of 104

CAD File: 62230566CD01.dwg

MATCH SHEET - CD06

183+62.38, TWY E
143.58' LT.
183+86.35, TWY E
131.97' LT.
183+62.51, TWY E
131.56' LT.

190+37.73, TWY E
61.41' LT.
190+13.34, TWY E
84.02' LT.
190+14.74, TWY E
59.00' LT.

190+73.14, TWY E
0.00'

190+15.14, TWY E
59.07' RT.
190+12.94, TWY E
83.48' RT.
190+37.90, TWY E
61.18' RT.

191+50.74, TWY E
156.29' RT.

TAXIWAY F
TAXIWAY E
TAXIWAY E-2
TAXIWAY E-1
RUNWAY 1R-19L
C-20
C-15
ROFA
RSA
WSK
184+00
185+00
186+00
187+00
188+00
189+00
190+00
191+00
192+00
193+00
194+00
195+00
196+00
197+00
ELEC MH
CLEANOUT
INLET
MH
ELEC CB
30" RCP
42" RCP

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5. REFER TO ELECTRICAL DEMOLITION PLANS FOR INFORMATION REGARDING ELECTRICAL INFRASTRUCTURE.
6. REMOVE EXISTING UNDERDRAIN CLEANOUT STRUCTURE WITHIN PROJECT LIMITS. EXISTING UNDERDRAIN VERTICAL RISER BETWEEN CLEANOUT AND DRAINAGE PIPE CONNECTION SHALL BE EXPOSED AND REMAIN BELOW PCCP/HMA SURFACE PAVEMENT. INSTALL COVER/EROSION CONTROL TO PROTECT UNDERDRAIN VERTICAL RISER TO REMAIN FROM DEMOLITION AND GRADING OPERATIONS AND INFILTRATION OF DEBRIS AND SEDIMENT. UNDERDRAIN CLEANOUT STRUCTURE REMOVAL AND PROTECTION SHALL BE SUBSIDIARY TO PAVEMENT REMOVAL PER SPECIFICATION P-101, PREPARATION/ REMOVAL OF EXISTING PAVEMENTS.
7. PERMANENT PAVEMENT MARKING REMOVAL COST SHALL BE PER SPECIFICATION P-620, RUNWAY AND TAXIWAY MARKING. PAVEMENT MARKING REMOVAL AND REMARKING OUTSIDE OF THE BARRICADE LIMITS FOR EACH WORK AREA SHALL NOT BE REMOVED UNTIL TEMPORARY MARKINGS ARE TO BE INSTALLED AT THE END OF EACH PHASE. THE CONTRACTOR SHALL COORDINATE WITH AIRPORT OPERATIONS FOR THE CLOSURE OF ADJACENT TAXIWAY TO COMPLETE REQUIRED PAVEMENT MARKING WORK.

LEGEND

- EX. SEC. 1 (1 CD09)
- EX. SEC. 2 (2 CD09)
- EX. SEC. 3 (3 CD09)
- EX. SEC. 4 (4 CD09)
- EX. SEC. 5 (5 CD09)
- STRUCTURE REMOVAL
- MARKING REMOVAL
- SAW-CUT VERTICAL FACE
- RSA — RUNWAY SAFETY AREA
- ROFA — RUNWAY OBJECT FREE AREA
- C-XXB BORING LOCATION
- C-XX CORING LOCATION

EXISTING UTILITIES

- ELECTRICAL LINE
- FAA ELEC. LINE
- UNDERDRAIN
- EXISTING PIPE
- COMM LINE
- GAS LINE

N

50 0 50 100
Scale Feet

KEY MAP

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT
KCI

HNTB
715 Kirk Drive
Kansas City, MO 64105
Licensee No. 001270

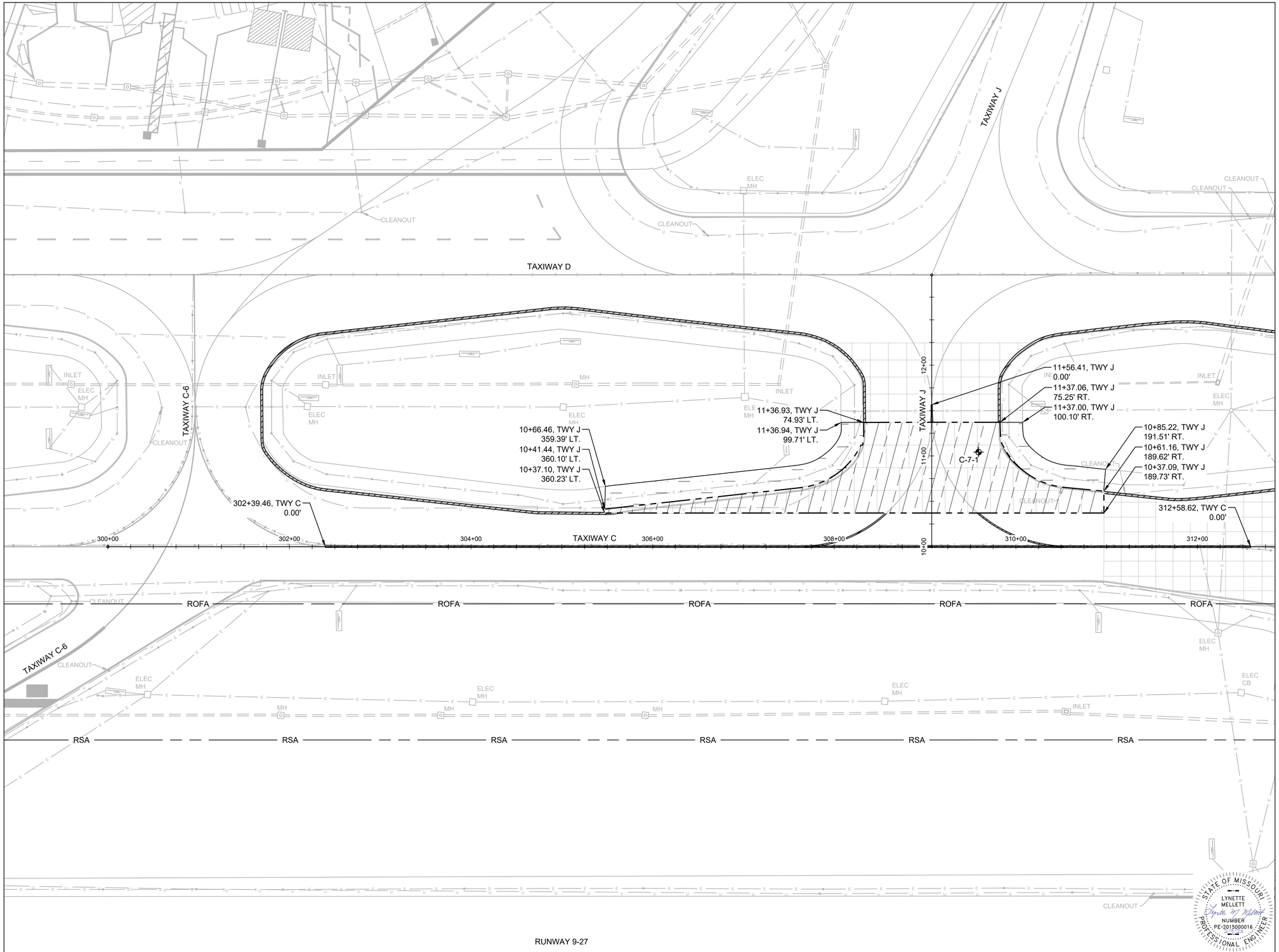
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

DEMOLITION PLAN

Design: MMW	CAD File: 62230566CD01.dwg	Aviation Project No. 62230566	
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CD07	22 of 104

CAD File: 62230566CD01.dwg



NOTES:

1. THE INFORMATION SHOWN ON THIS DRAWING CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. UTILITIES INCLUDE BUT ARE NOT LIMITED TO ELECTRICAL, STORM, SANITARY, GAS AND COMMUNICATIONS.
2. PRIOR TO PAVEMENT REMOVAL, CONTRACTOR SHALL SAW CUT SURFACE RECONSTRUCTION EDGES OF PAVEMENT (TO DEPTH OF TOP PCC LAYER) TO PROVIDE CLEAN VERTICAL FACE.
3. ANY DAMAGE TO EXISTING PAVEMENT, ELECTRICAL SYSTEM, LIGHTING, SIGNAGE, UTILITIES, UNDERDRAIN SYSTEM OR PAVEMENT MARKING TO REMAIN SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE. DAMAGE TO THE UNDERLYING LEAN CONCRETE BASE AND ASPHALT PAVEMENT SHALL BE REPAIRED IN ACCORDANCE WITH DETAIL 1 AND 2 ON PLAN SHEET G13.
4. TEMPORARY EROSION CONTROL DEVICES SHALL BE IN PLACE AND APPROVED BY THE RPR PRIOR TO DEMOLITION ACTIVITIES. REFER TO EROSION CONTROL PLANS.
5. REFER TO ELECTRICAL DEMOLITION PLANS FOR INFORMATION REGARDING ELECTRICAL INFRASTRUCTURE.
6. REMOVE EXISTING UNDERDRAIN CLEANOUT STRUCTURE WITHIN PROJECT LIMITS. EXISTING UNDERDRAIN VERTICAL RISER BETWEEN CLEANOUT AND DRAINAGE PIPE CONNECTION SHALL BE EXPOSED AND REMAIN BELOW PCCP/HMA SURFACE PAVEMENT. INSTALL COVER/EROSION CONTROL TO PROTECT UNDERDRAIN VERTICAL RISER TO REMAIN FROM DEMOLITION AND GRADING OPERATIONS AND INFILTRATION OF DEBRIS AND SEDIMENT. UNDERDRAIN CLEANOUT STRUCTURE REMOVAL AND PROTECTION SHALL BE SUBSIDIARY TO PAVEMENT REMOVAL PER SPECIFICATION P-101, PREPARATION/ REMOVAL OF EXISTING PAVEMENTS.
7. PERMANENT PAVEMENT MARKING REMOVAL COST SHALL BE PER SPECIFICATION P-620, RUNWAY AND TAXIWAY MARKING. PAVEMENT MARKING REMOVAL AND REMARKING OUTSIDE OF THE BARRICADE LIMITS FOR EACH WORK AREA SHALL NOT BE REMOVED UNTIL TEMPORARY MARKINGS ARE TO BE INSTALLED AT THE END OF EACH PHASE. THE CONTRACTOR SHALL COORDINATE WITH AIRPORT OPERATIONS FOR THE CLOSURE OF ADJACENT TAXIWAY TO COMPLETE REQUIRED PAVEMENT MARKING WORK.

LEGEND

- EX. SEC. 1 (1 CD09)
- EX. SEC. 2 (2 CD09)
- EX. SEC. 3 (3 CD09)
- EX. SEC. 4 (4 CD09)
- EX. SEC. 5 (5 CD09)
- STRUCTURE REMOVAL
- MARKING REMOVAL
- SAW-CUT VERTICAL FACE
- RSA — RUNWAY SAFETY AREA
- ROFA — RUNWAY OBJECT FREE AREA
- C-XXB BORING LOCATION
- C-XX CORING LOCATION

EXISTING UTILITIES

- ELECTRICAL LINE
- FAA ELEC. LINE
- UNDERDRAIN
- EXISTING PIPE
- COMM LINE
- GAS LINE

N

50 0 50 100
Scale Feet

KEY MAP

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LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

No.	Revision	Date

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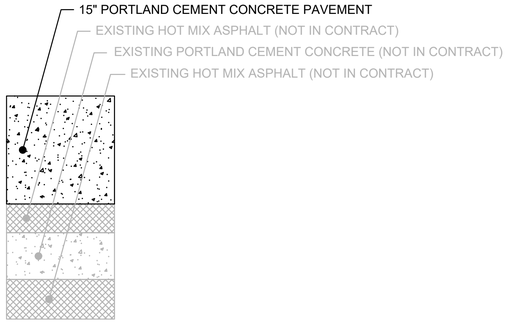
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

DEMOLITION PLAN

Design: MMW	CAD File: 62230566CD01.dwg	Aviation Project No. 62230566	
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CD08	23 of 104

CAD File: 62230566CD01.dwg



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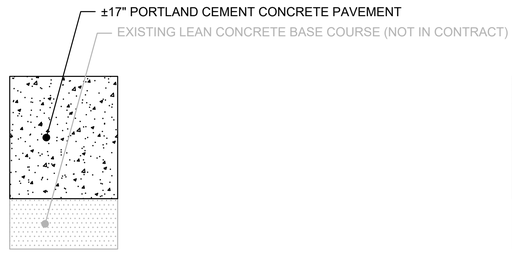

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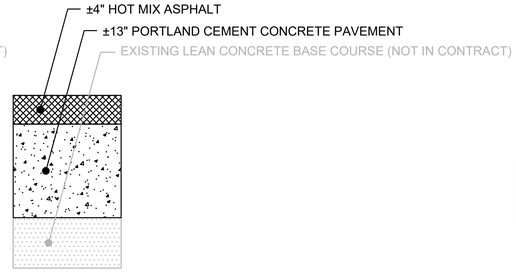

3 EXISTING SECTION 3
NOT TO SCALE



4 EXISTING SECTION 4
NOT TO SCALE



5 EXISTING SECTION 5
NOT TO SCALE

NOTES:

1. INFORMATION SHOWN ON EXISTING PAVEMENT SECTIONS ARE COMPILED FROM RECORD DRAWINGS AND GEOTECHNICAL INVESTIGATIONS. THE INFORMATION IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR SHALL REVIEW THE BORING/ CORING PLAN AND THE GEOTECHNICAL REPORT TO DETERMINE THE NECESSARY VARIABLE PCC SURFACE REMOVAL DEPTH. ADDITIONAL PAYMENT WILL NOT BE PROVIDED FOR AREAS SHOWN IN THE PLANS TO BE REMOVED AS REQUIRED PER SPECIFICATION P-101, PREPARATION/ REMOVAL OF EXISTING PAVEMENTS.

2. ALL PAVEMENT DEMOLITION WASTE SHALL BE DISPOSED OF OFF SITE BY THE CONTRACTOR IMMEDIATELY FOLLOWING PAVEMENT REMOVAL. DEMOLITION HAULING SHALL BE CONSIDERED INCIDENTAL TO PAVEMENT REMOVAL AS REQUIRED PER SPECIFICATION P-101, PREPARATION/ REMOVAL OF EXISTING PAVEMENTS.

3. THE CONTRACTOR SHALL TAKE CARE TO NOT DAMAGE EXISTING PAVEMENT LAYERS OR SUBGRADE NOT INCLUDED IN THE CONTRACT. PAVEMENT LAYERS OR SUBGRADE TO REMAIN THAT ARE DAMAGED DURING REMOVAL OR ARE UNDERMINED BEFORE NEW PAVEMENT IS CONSTRUCTED SHALL BE REPAIRED AT THE EXPENSE OF THE CONTRACTOR. DAMAGE TO THE UNDERLYING LEAN CONCRETE BASE PAVEMENT SHALL BE REPAIRED IN ACCORDANCE WITH DETAIL 1 ON PLAN SHEET G13.

STATE OF MISSOURI
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Kansas City, MO 64105
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CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

DEMOLITION DETAILS

Design: MMW	CAD File: 62230566CD09.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CD09 24 of 104

CAD File: 62230566CD09.dwg

NOTES:

1. SITE SHALL BE CLEARED AND GRUBBED PRIOR TO BEGINNING EARTHWORK. COSTS ASSOCIATED WITH CLEARING AND GRUBBING SHALL BE COVERED UNDER ITEM P-151-1, CLEARING AND GRUBBING. THE AREA TO BE CLEARED AND GRUBBED IS DEPICTED BY THE BOUNDARY OF SODDING AND/OR SEEDING LIMITS, AS NECESSARY. MATERIAL THAT IS CLEARED AND GRUBBED SHALL BE STOCKPILED ON SITE AND USED AS TOPSOIL PRIOR TO SEEDING OPERATIONS AS NECESSARY. NO ADDITIONAL PAYMENT SHALL BE MADE FOR STOCKPILING OR HANDLING OF THIS MATERIAL.
2. TEMPORARY EROSION CONTROL DEVICES SHALL BE IN PLACE AND APPROVED BY THE RPR PRIOR TO EARTHWORK ACTIVITIES.
3. EXPOSE EXISTING UNDERDRAIN VERTICAL RISER BETWEEN CLEANOUT AND DRAINAGE PIPE CONNECTION BELOW PCCP/HMA SURFACE PAVEMENT. INSTALL NEW UNDERDRAIN CLEANOUT STRUCTURE IN NEW PAVEMENT PER SPECIFICATION D-751, MANHOLES, CATCH BASINS, INLETS AND INSPECTION HOLES. REFERENCE ELECTRICAL DETAILS FOR PROPOSED ELECTRICAL DRAIN CONDUIT.

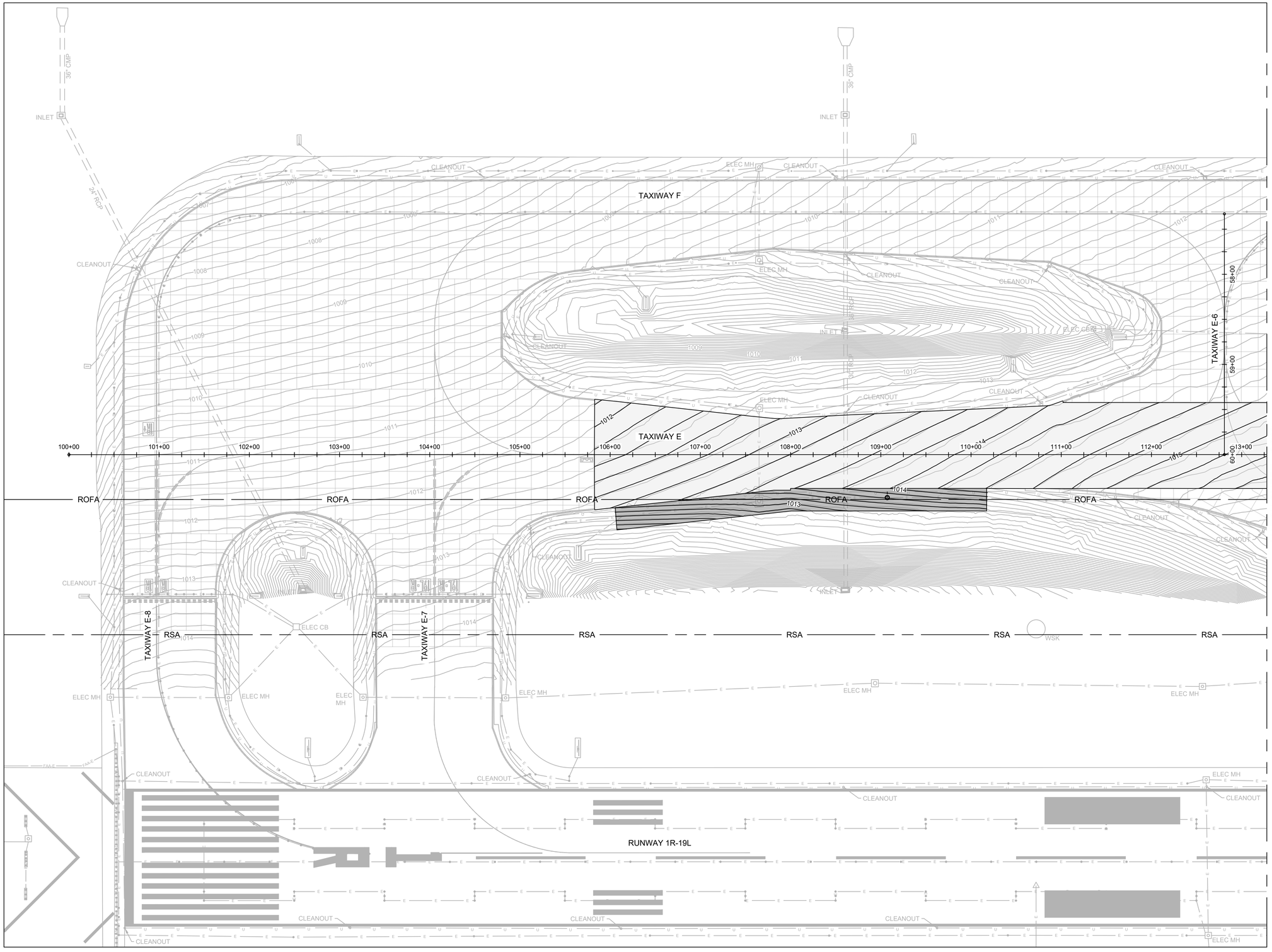
LEGEND

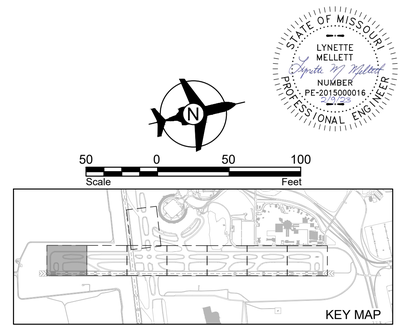
- EXISTING MINOR CONTOURS
- EXISTING MAJOR CONTOURS (1076)
- PROPOSED MINOR CONTOURS
- PROPOSED MAJOR CONTOURS (1076)
- RSA — RUNWAY SAFETY AREA
- ROFA — RUNWAY OBJECT FREE AREA
- PROPOSED PAVEMENT
- PROPOSED UNDERDRAIN CLEANOUT
- PROPOSED ELECTRICAL DRAIN CONDUIT
- PROPOSED ELECTRICAL LIGHT BASE

EXISTING UTILITIES

- E — ELECTRICAL LINE
- EXISTING PIPE
- FAA-E — FAA ELEC. LINE
- COMM — COMM LINE
- U — UNDERDRAIN
- G — GAS LINE

MATCH SHEET - CG02





STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT

KCI

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CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

GRADING AND DRAINAGE PLAN

Design: MMW	CAD File:62230566CG01.dwg	Aviation Project No. 62230566	
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CG01	25 of 104

CAD File: 62230566CG01.dwg

NOTES:

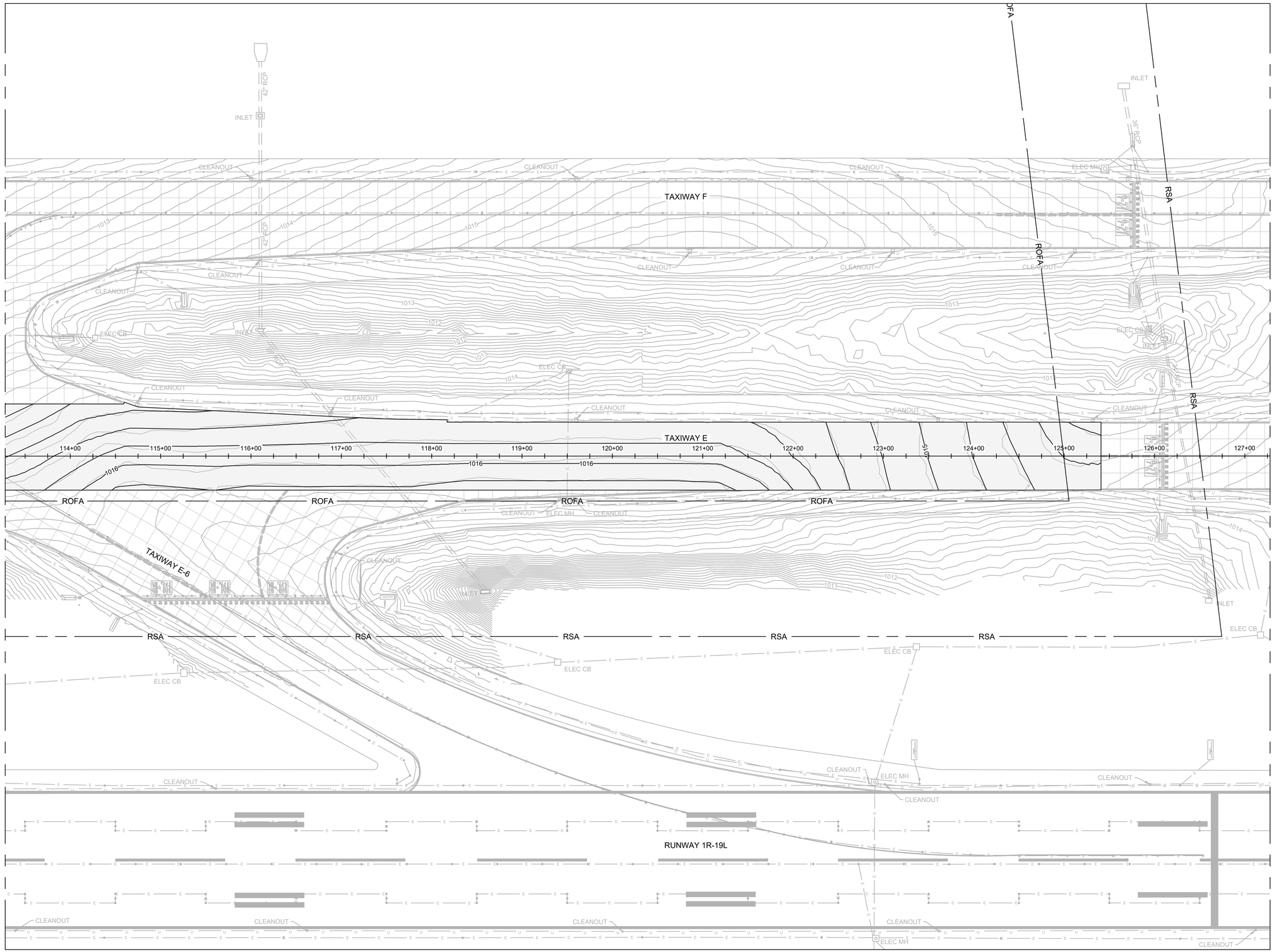
1. SITE SHALL BE CLEARED AND GRUBBED PRIOR TO BEGINNING EARTHWORK. COSTS ASSOCIATED WITH CLEARING AND GRUBBING SHALL BE COVERED UNDER ITEM P-151-1, CLEARING AND GRUBBING. THE AREA TO BE CLEARED AND GRUBBED IS DEPICTED BY THE BOUNDARY OF SODDING AND/OR SEEDING LIMITS, AS NECESSARY. MATERIAL THAT IS CLEARED AND GRUBBED SHALL BE STOCKPILED ON SITE AND USED AS TOPSOIL PRIOR TO SEEDING OPERATIONS AS NECESSARY. NO ADDITIONAL PAYMENT SHALL BE MADE FOR STOCKPILING OR HANDLING OF THIS MATERIAL.
2. TEMPORARY EROSION CONTROL DEVICES SHALL BE IN PLACE AND APPROVED BY THE RPR PRIOR TO EARTHWORK ACTIVITIES.
3. EXPOSE EXISTING UNDERDRAIN VERTICAL RISER BETWEEN CLEANOUT AND DRAINAGE PIPE CONNECTION BELOW PCCP/HMA SURFACE PAVEMENT. INSTALL NEW UNDERDRAIN CLEANOUT STRUCTURE IN NEW PAVEMENT PER SPECIFICATION D-751, MANHOLES, CATCH BASINS, INLETS AND INSPECTION HOLES. REFERENCE ELECTRICAL DETAILS FOR PROPOSED ELECTRICAL DRAIN CONDUIT.

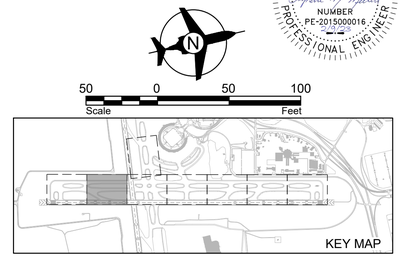
LEGEND

- EXISTING MINOR CONTOURS
- 1076 EXISTING MAJOR CONTOURS
- PROPOSED MINOR CONTOURS
- 1076 PROPOSED MAJOR CONTOURS
- RSA RUNWAY SAFETY AREA
- ROFA RUNWAY OBJECT FREE AREA
- PROPOSED PAVEMENT
- PROPOSED UNDERDRAIN CLEANOUT
- PROPOSED ELECTRICAL DRAIN CONDUIT
- PROPOSED ELECTRICAL LIGHT BASE

EXISTING UTILITIES

- E ELECTRICAL LINE
- EXISTING PIPE
- FAA-E FAA ELEC. LINE
- COMM COMM LINE
- U UNDERDRAIN
- G GAS LINE





STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT

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715 Kirk Drive
Kansas City, MO 64105
Licensee No. 001270

CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

GRADING AND DRAINAGE PLAN

Design: MMW	CAD File:62230566CG01.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CG02 26 of 104

CAD File: 62230566CG01.dwg

NOTES:

1. SITE SHALL BE CLEARED AND GRUBBED PRIOR TO BEGINNING EARTHWORK. COSTS ASSOCIATED WITH CLEARING AND GRUBBING SHALL BE COVERED UNDER ITEM P-151-1, CLEARING AND GRUBBING. THE AREA TO BE CLEARED AND GRUBBED IS DEPICTED BY THE BOUNDARY OF SODDING AND/OR SEEDING LIMITS, AS NECESSARY. MATERIAL THAT IS CLEARED AND GRUBBED SHALL BE STOCKPILED ON SITE AND USED AS TOPSOIL PRIOR TO SEEDING OPERATIONS AS NECESSARY. NO ADDITIONAL PAYMENT SHALL BE MADE FOR STOCKPILING OR HANDLING OF THIS MATERIAL.
2. TEMPORARY EROSION CONTROL DEVICES SHALL BE IN PLACE AND APPROVED BY THE RPR PRIOR TO EARTHWORK ACTIVITIES.
3. EXPOSE EXISTING UNDERDRAIN VERTICAL RISER BETWEEN CLEANOUT AND DRAINAGE PIPE CONNECTION BELOW PCCP/HMA SURFACE PAVEMENT. INSTALL NEW UNDERDRAIN CLEANOUT STRUCTURE IN NEW PAVEMENT PER SPECIFICATION D-751, MANHOLES, CATCH BASINS, INLETS AND INSPECTION HOLES. REFERENCE ELECTRICAL DETAILS FOR PROPOSED ELECTRICAL DRAIN CONDUIT.

LEGEND

- EXISTING MINOR CONTOURS
- EXISTING MAJOR CONTOURS
- PROPOSED MINOR CONTOURS
- PROPOSED MAJOR CONTOURS
- RSA — RUNWAY SAFETY AREA
- ROFA — RUNWAY OBJECT FREE AREA
- PROPOSED PAVEMENT
- PROPOSED UNDERDRAIN CLEANOUT
- PROPOSED ELECTRICAL DRAIN CONDUIT
- PROPOSED ELECTRICAL LIGHT BASE

EXISTING UTILITIES

- ELECTRICAL LINE
- FAA ELEC. LINE
- UNDERDRAIN
- EXISTING PIPE
- COMM LINE
- GAS LINE

MATCH SHEET - CG02

MATCH SHEET - CG04

CO-01
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RIM: 1009.97

CO-18
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E: 2730322.33
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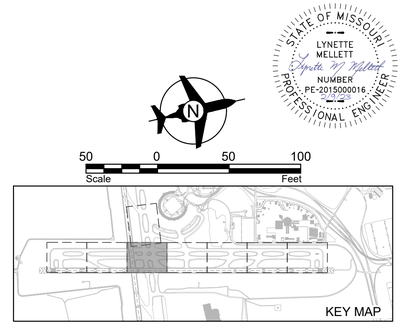

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STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT

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CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

GRADING AND DRAINAGE PLAN

Design: MMW	CAD File:62230566CG01.dwg	Aviation Project No.	62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	CG03 27 of 104

CAD File: 62230566CG01.dwg

NOTES:

1. SITE SHALL BE CLEARED AND GRUBBED PRIOR TO BEGINNING EARTHWORK. COSTS ASSOCIATED WITH CLEARING AND GRUBBING SHALL BE COVERED UNDER ITEM P-151-1, CLEARING AND GRUBBING. THE AREA TO BE CLEARED AND GRUBBED IS DEPICTED BY THE BOUNDARY OF SODDING AND/OR SEEDING LIMITS, AS NECESSARY. MATERIAL THAT IS CLEARED AND GRUBBED SHALL BE STOCKPILED ON SITE AND USED AS TOPSOIL PRIOR TO SEEDING OPERATIONS AS NECESSARY. NO ADDITIONAL PAYMENT SHALL BE MADE FOR STOCKPILING OR HANDLING OF THIS MATERIAL.
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3. EXPOSE EXISTING UNDERDRAIN VERTICAL RISER BETWEEN CLEANOUT AND DRAINAGE PIPE CONNECTION BELOW PCCP/HMA SURFACE PAVEMENT. INSTALL NEW UNDERDRAIN CLEANOUT STRUCTURE IN NEW PAVEMENT PER SPECIFICATION D-751, MANHOLES, CATCH BASINS, INLETS AND INSPECTION HOLES. REFERENCE ELECTRICAL DETAILS FOR PROPOSED ELECTRICAL DRAIN CONDUIT.

LEGEND

- EXISTING MINOR CONTOURS
- 1076 EXISTING MAJOR CONTOURS
- PROPOSED MINOR CONTOURS
- 1076 PROPOSED MAJOR CONTOURS
- RSA RUNWAY SAFETY AREA
- ROFA RUNWAY OBJECT FREE AREA
- PROPOSED PAVEMENT
- PROPOSED UNDERDRAIN CLEANOUT
- PROPOSED ELECTRICAL DRAIN CONDUIT
- PROPOSED ELECTRICAL LIGHT BASE

EXISTING UTILITIES

- E ELECTRICAL LINE
- FAA-E FAA ELEC. LINE
- U UNDERDRAIN
- EXISTING PIPE
- COMM COMM LINE
- G GAS LINE

MATCH SHEET- CG03

MATCH SHEET - CG05

TAXIWAY F

TAXIWAY E

TAXIWAY K

RUNWAY 1R-19L

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E: 2730319.69
RIM: 1007.38

CO-03
N: 1139183.04
E: 2730379.92
RIM: 1003.47

CO-04
N: 1139519.15
E: 2730511.41
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CO-17
N: 1138670.95
E: 2730398.51
RIM: 1008.13

CO-16
N: 1139252.60
E: 2730555.29
RIM: 1004.00

CO-15
N: 1139597.59
E: 2730613.76
RIM: 1001.22

142+00 143+00 144+00 145+00 146+00 147+00 148+00 149+00 150+00 151+00 152+00 153+00 154+00 155+00

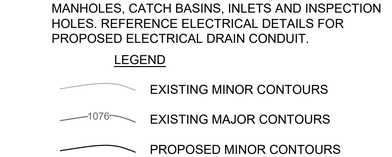
53+00 54+00 55+00

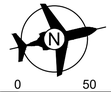
ROFA ROFA ROFA ROFA ROFA

RSA RSA RSA RSA RSA RSA

30" RCP 30" RCP 36" RCP

INLET ELEC MH ELEC CB CLEANOUT





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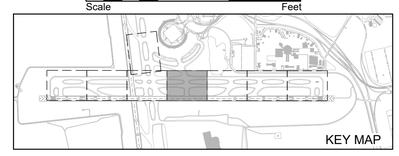

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
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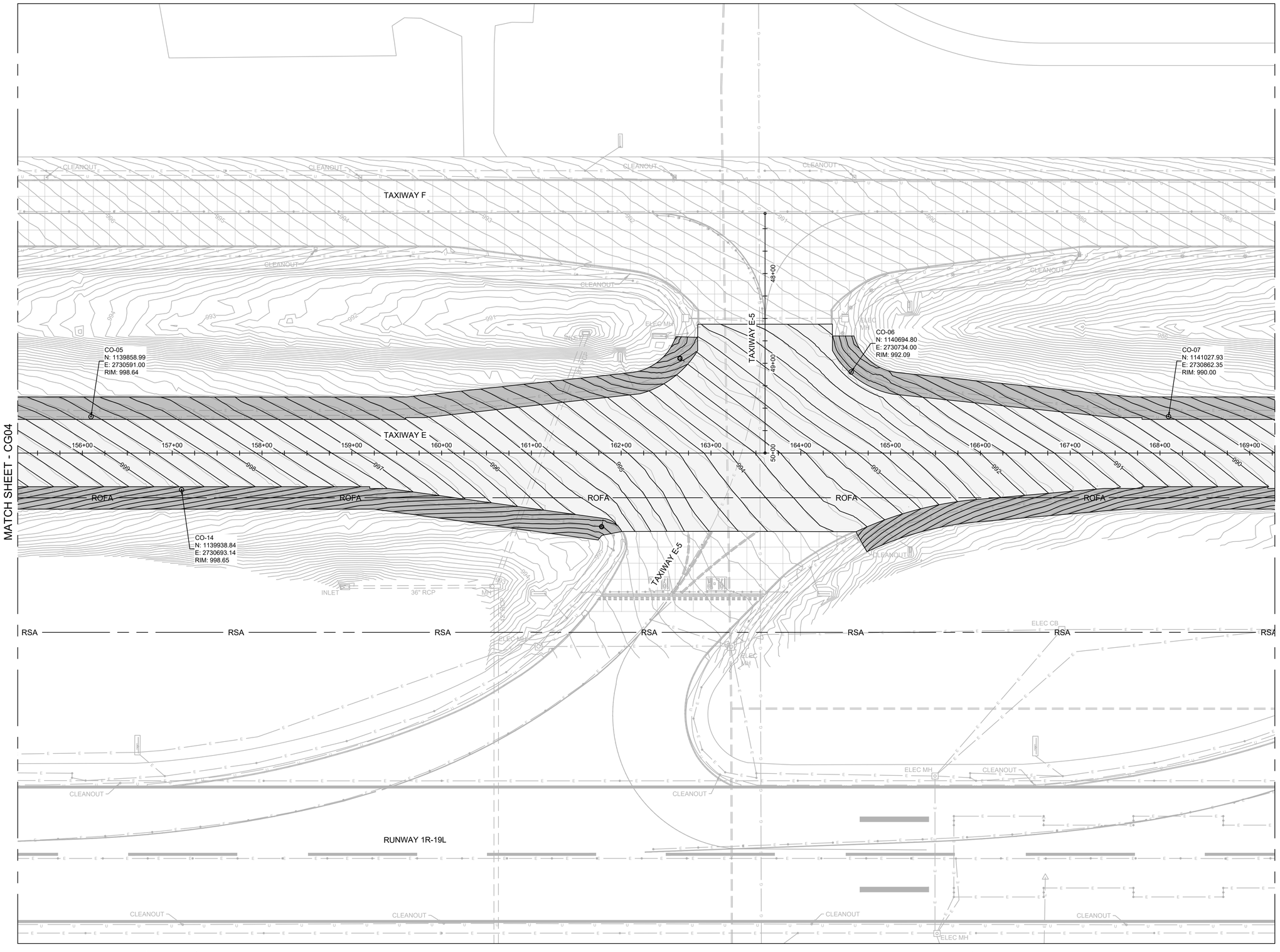
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

GRADING AND DRAINAGE PLAN

Design: MMW	CAD File:62230566CG01.dwg	Aviation Project No.	62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	CG04 28 of 104

CAD File: 62230566CG01.dwg



NOTES:

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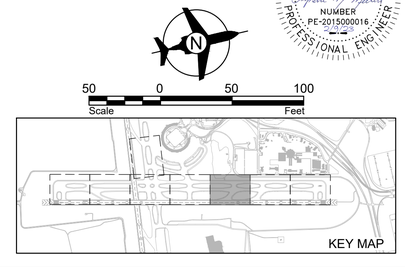
LEGEND

- EXISTING MINOR CONTOURS
- 1076 EXISTING MAJOR CONTOURS
- PROPOSED MINOR CONTOURS
- 1076 PROPOSED MAJOR CONTOURS
- RSA RUNWAY SAFETY AREA
- ROFA RUNWAY OBJECT FREE AREA
- PROPOSED PAVEMENT
- PROPOSED UNDERDRAIN CLEANOUT
- PROPOSED ELECTRICAL DRAIN CONDUIT
- PROPOSED ELECTRICAL LIGHT BASE

EXISTING UTILITIES

- E ELECTRICAL LINE
- EXISTING PIPE
- FAA-E FAA ELEC. LINE
- COMM COMM LINE
- U UNDERDRAIN
- G GAS LINE



No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
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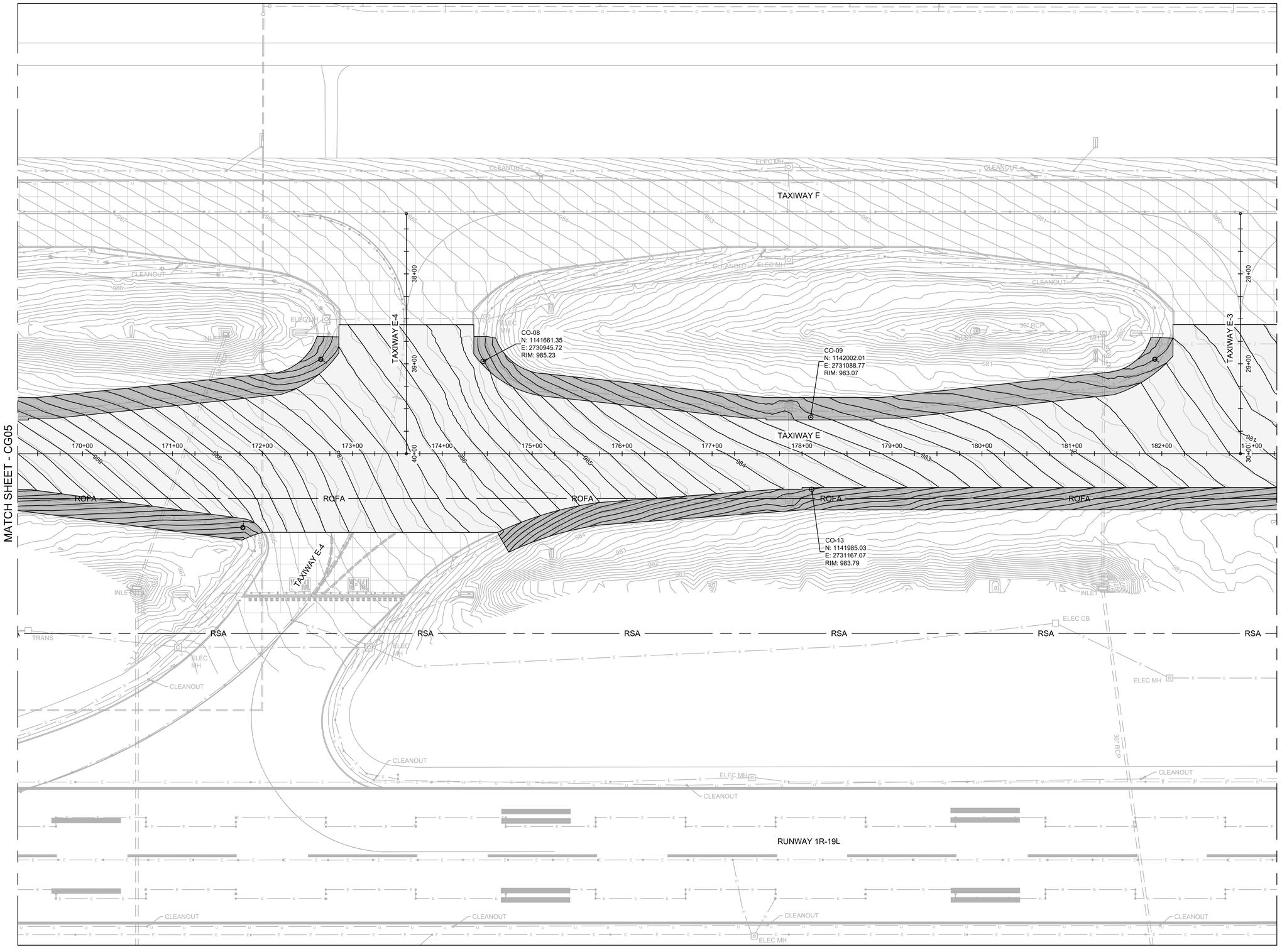
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

GRADING AND DRAINAGE PLAN

Design: MMW	CAD File:62230566CG01.dwg	Aviation Project No.	62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	CG05 29 of 104

CAD File: 62230566CG01.dwg



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- PROPOSED UNDERDRAIN CLEANOUT
- PROPOSED ELECTRICAL DRAIN CONDUIT
- PROPOSED ELECTRICAL LIGHT BASE

EXISTING UTILITIES

- E ELECTRICAL LINE
- EXISTING PIPE
- FAA-E FAA ELEC. LINE
- COMM COMM LINE
- U UNDERDRAIN
- G GAS LINE

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

50 0 50 100
Scale Feet

KEY MAP

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
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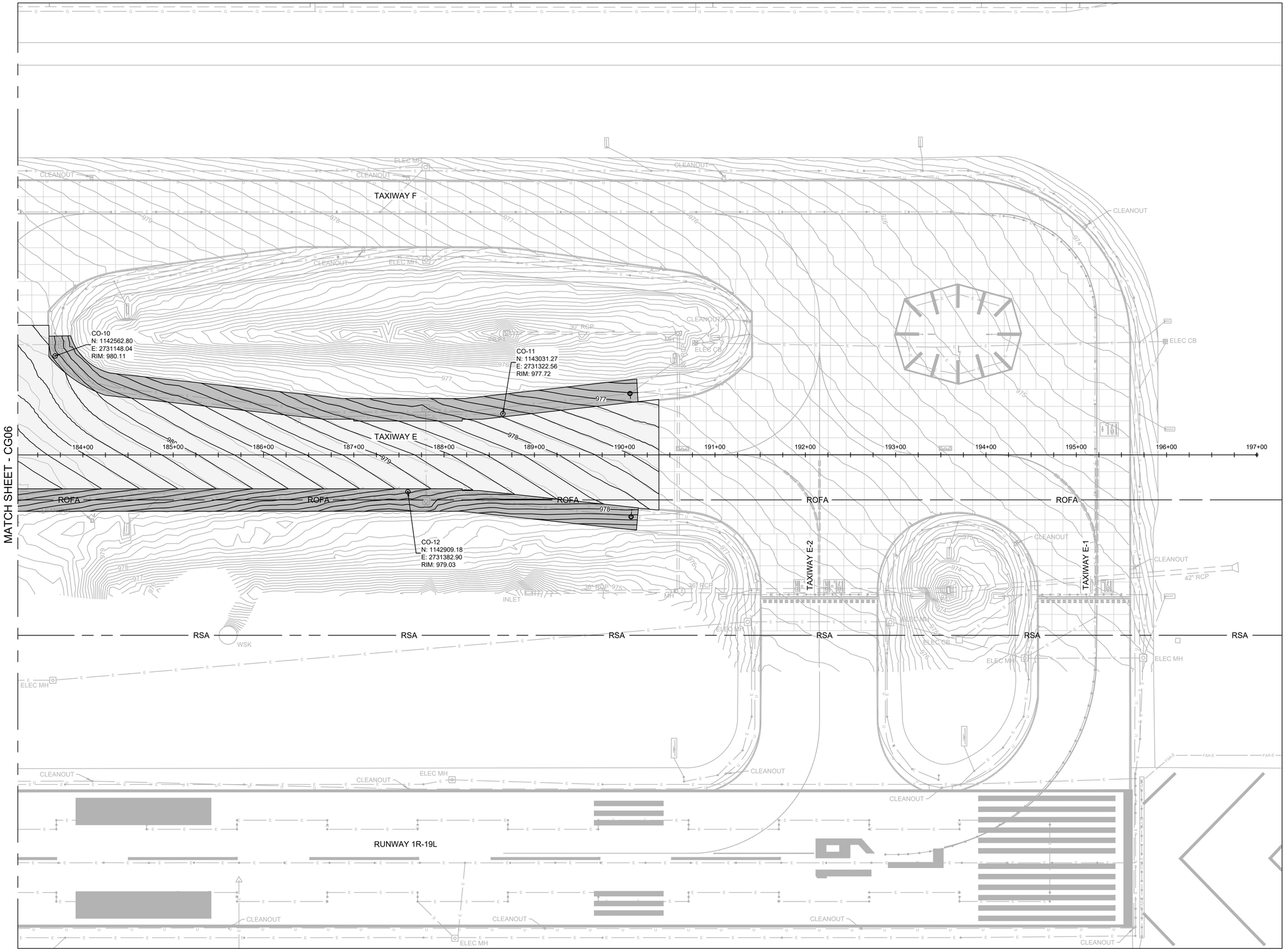
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

GRADING AND DRAINAGE PLAN

Design: MMW	CAD File:62230566CG01.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CG06 30 of 104

CAD File: 62230566CG01.dwg



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STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
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50 0 50 100
Scale Feet

KEY MAP

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CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

GRADING AND DRAINAGE PLAN

Design: MMW	CAD File:62230566CG01.dwg	Aviation Project No. 62230566	
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CG07	31 of 104

CAD File: 62230566CG01.dwg

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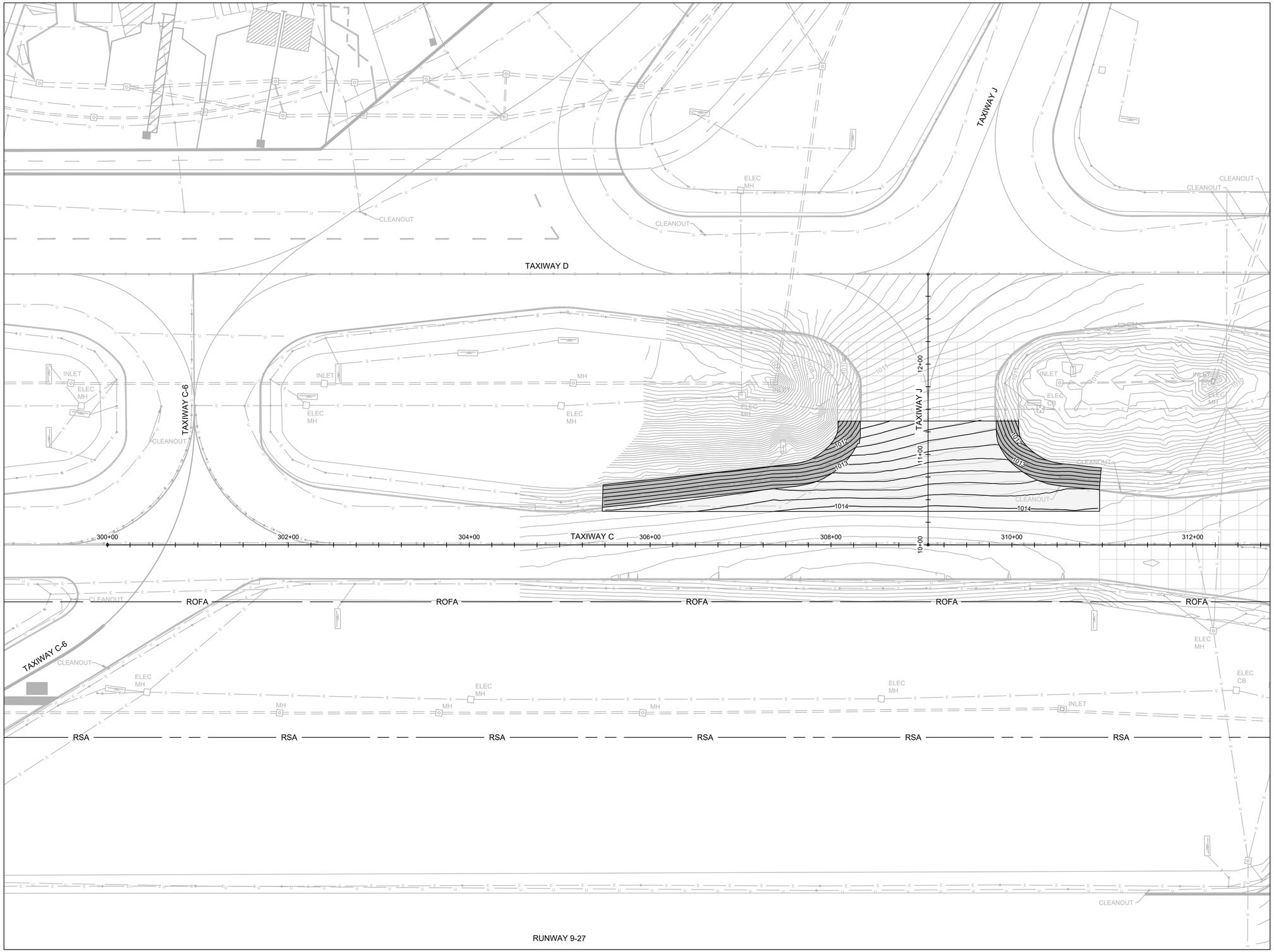

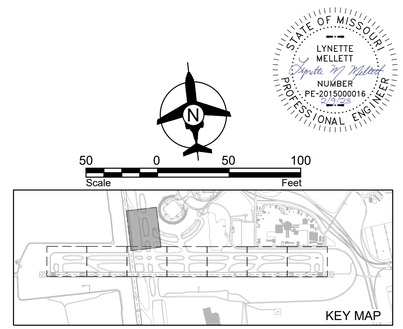

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

50 0 50 100
Scale Feet

No.	Revision	Date

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CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

GRADING AND DRAINAGE PLAN

Design: MMW	CAD File:62230566CG01.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CG08 32 of 104

CAD File: 62230566CG01.dwg

NOTES:

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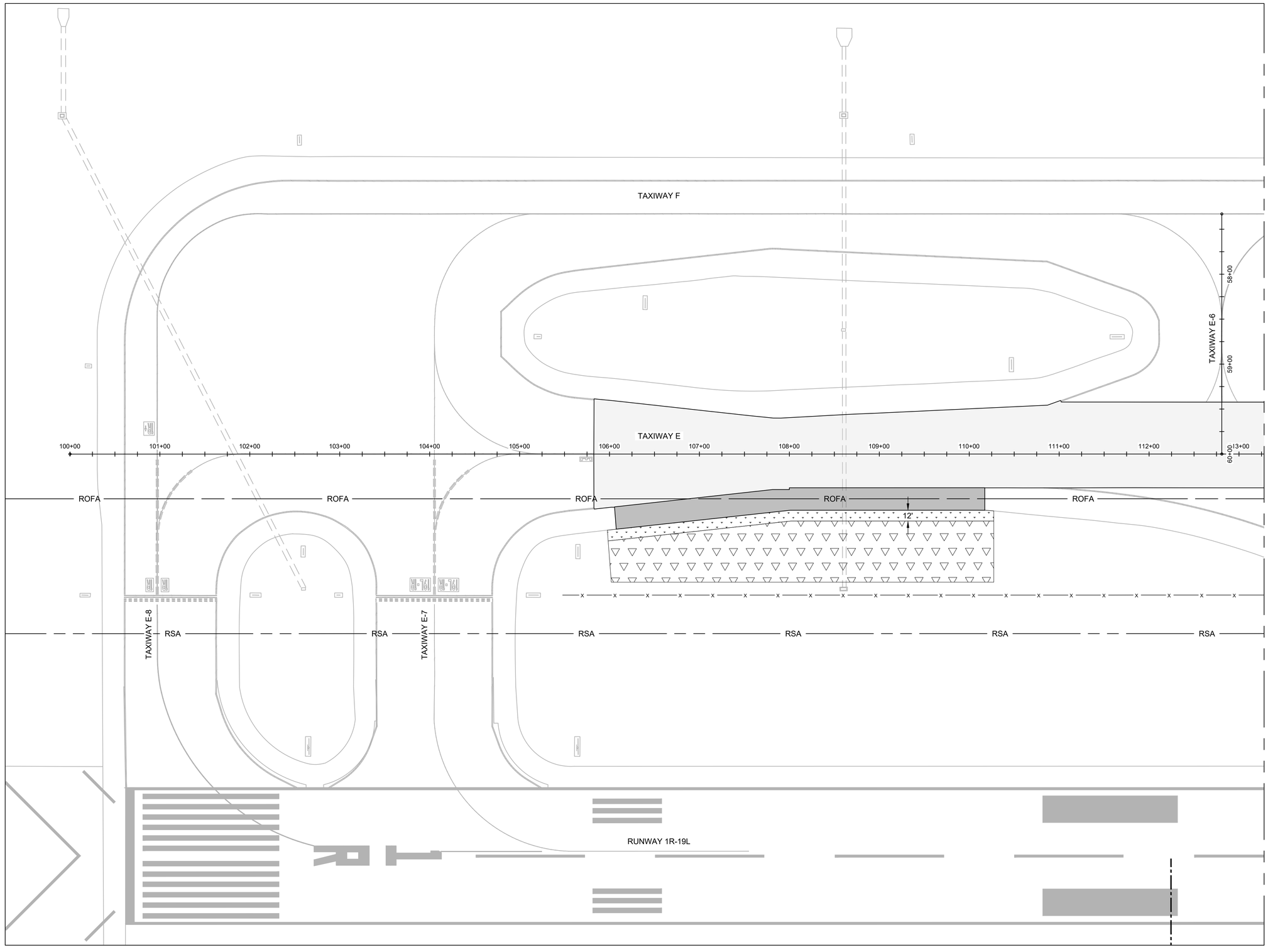
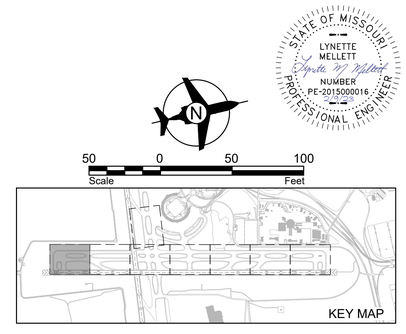
LEGEND

- SODDING LIMITS
- SEEDING AND MULCHING LIMIT
- PROPOSED PAVEMENTS
- SILT FENCE (1 / CG18)
- RUNWAY SAFETY AREA
- RUNWAY OBJECT FREE AREA
- EXISTING STORM PIPE





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CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

EROSION CONTROL PLAN

Design: MMW	CAD File:62230566CG09.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CG09 33 of 104

CAD File: 62230566CG09.dwg

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- x — x — SILT FENCE (1 / CG18)
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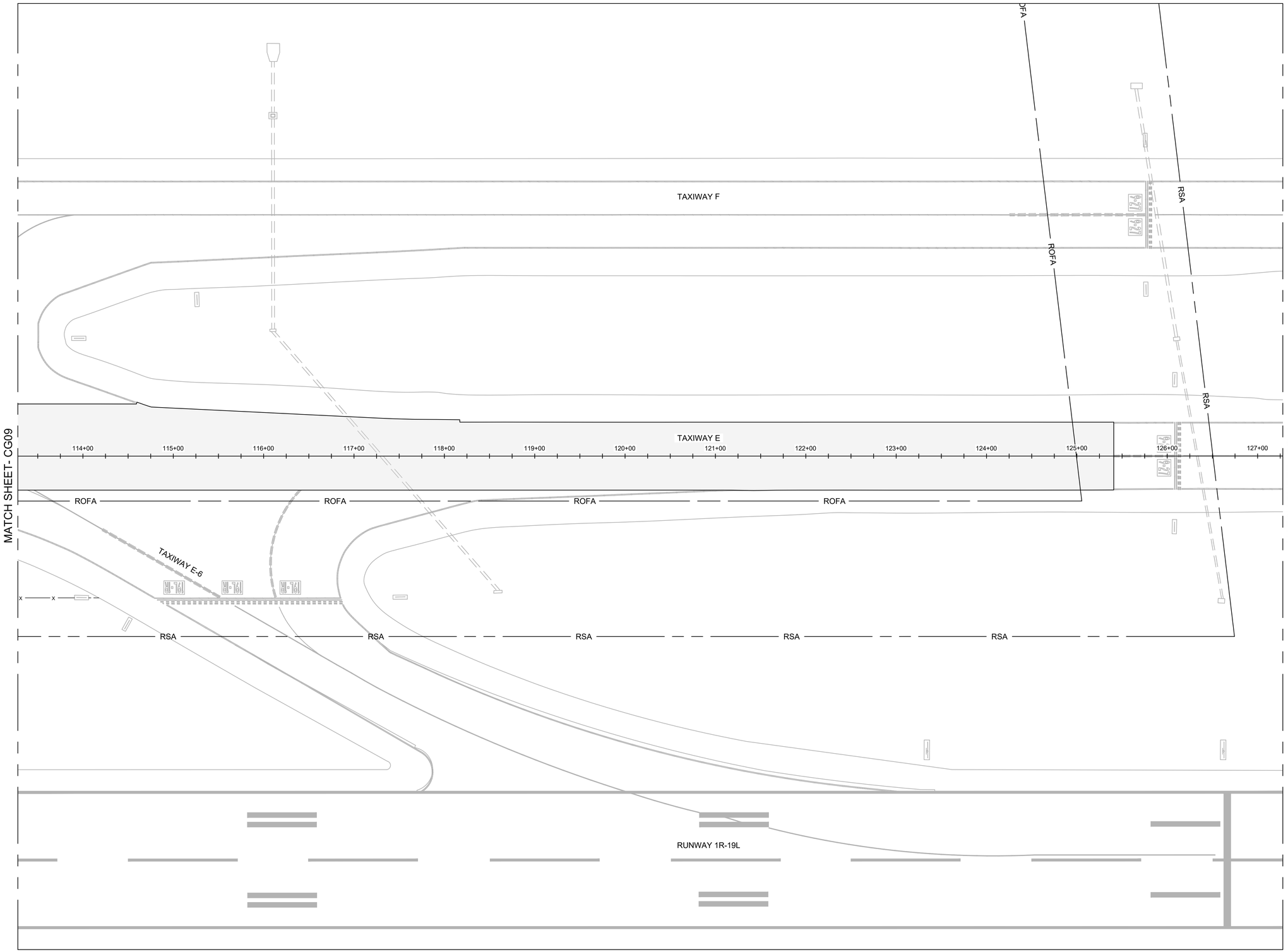
- EXISTING STORM PIPE



LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER
STATE OF MISSOURI

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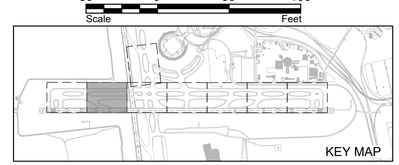
Scale Feet



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CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

EROSION CONTROL PLAN

Design: MMW	CAD File:62230566CG09.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CG10 34 of 104

CAD File: 62230566CG09.dwg

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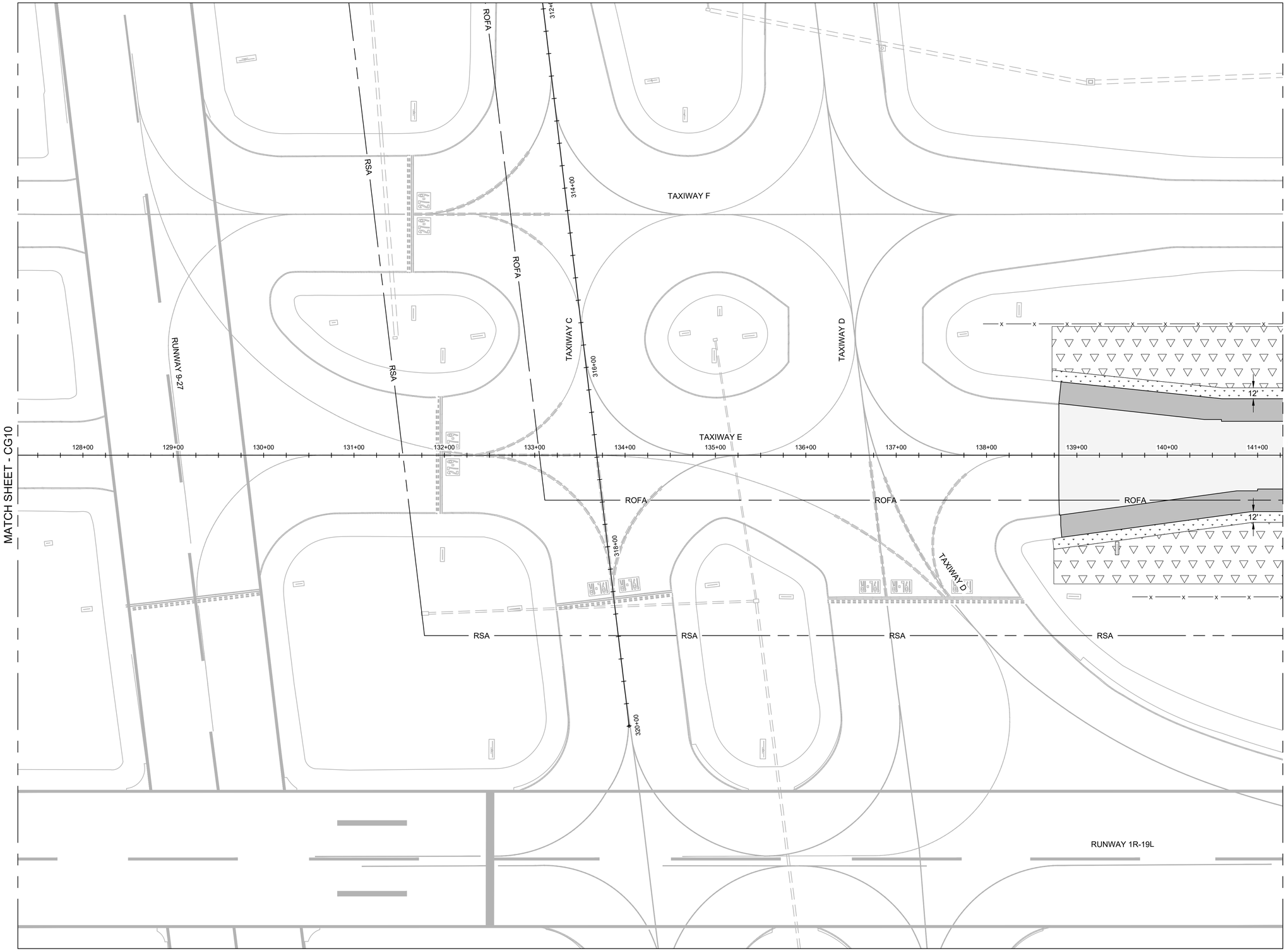

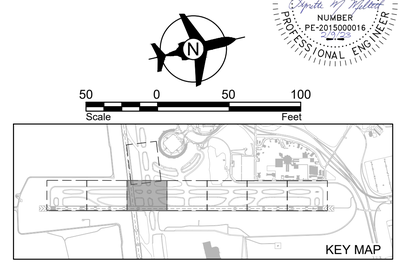

STATE OF MISSOURI
LYNETTE MELLETT
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CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

EROSION CONTROL PLAN

Design: MMW	CAD File:62230566CG09.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CG11 35 of 104

CAD File: 62230566CG09.dwg

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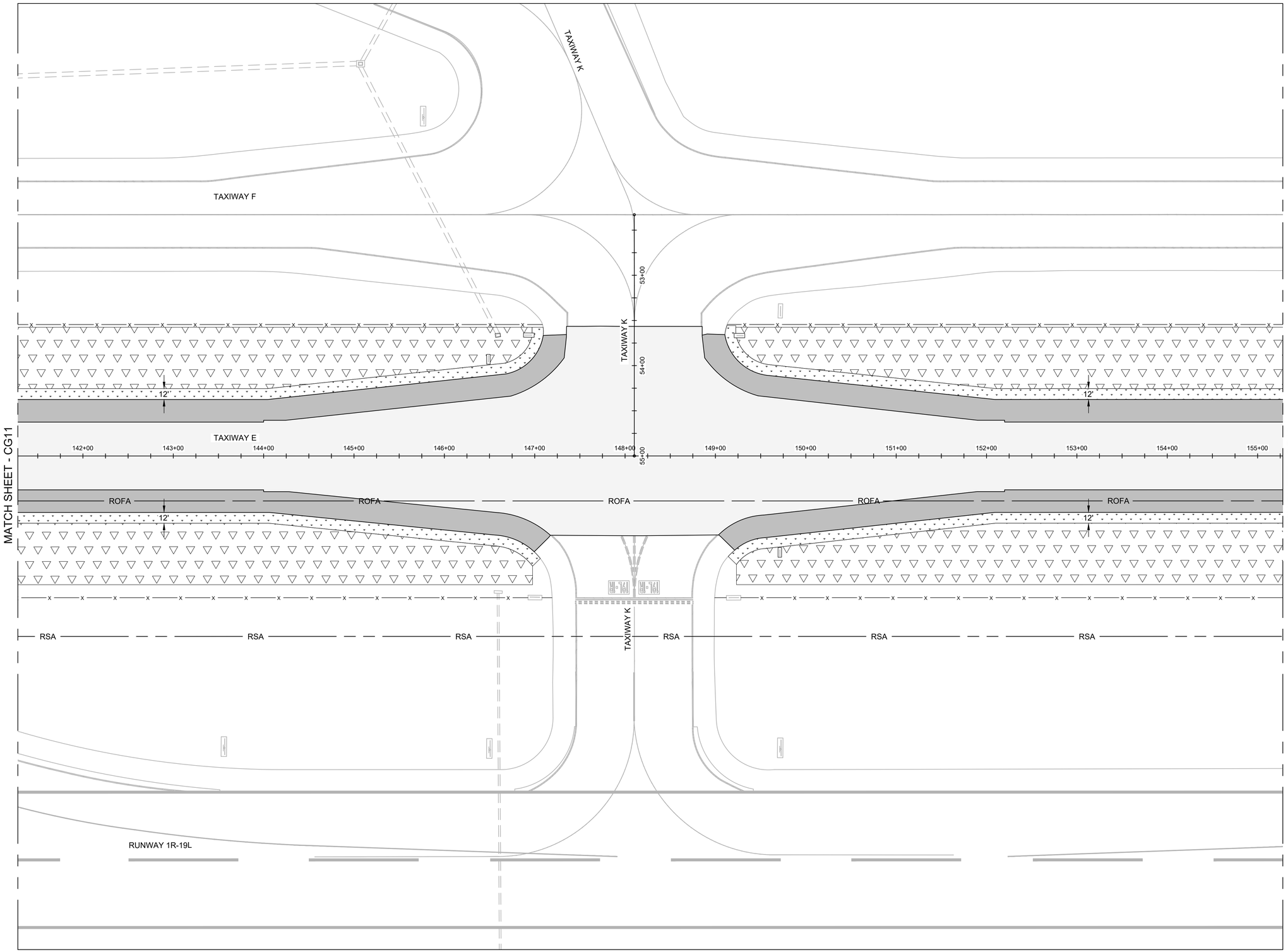

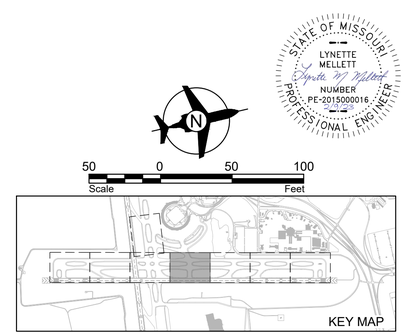

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CITY OF FOUNTAINS HEART OF THE NATION
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TAXIWAY E AND TAXIWAY J REHABILITATION

EROSION CONTROL PLAN

Design: MMW	CAD File:62230566CG09.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CG12 36 of 104

CAD File: 62230566CG09.dwg

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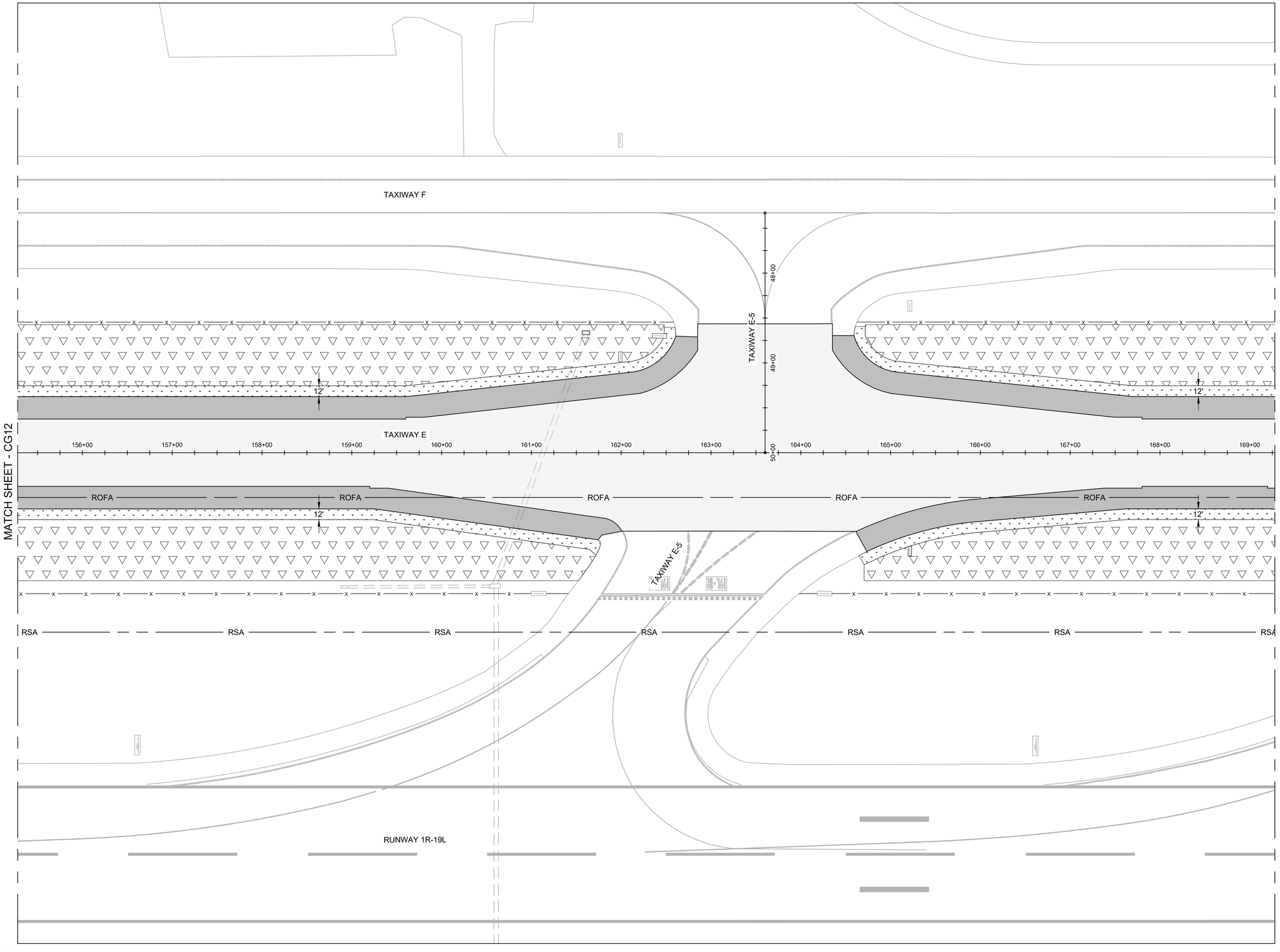

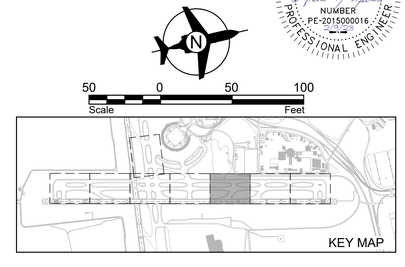

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EROSION CONTROL PLAN

Design: MMW	CAD File:62230566CG09.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CG13 37 of 104

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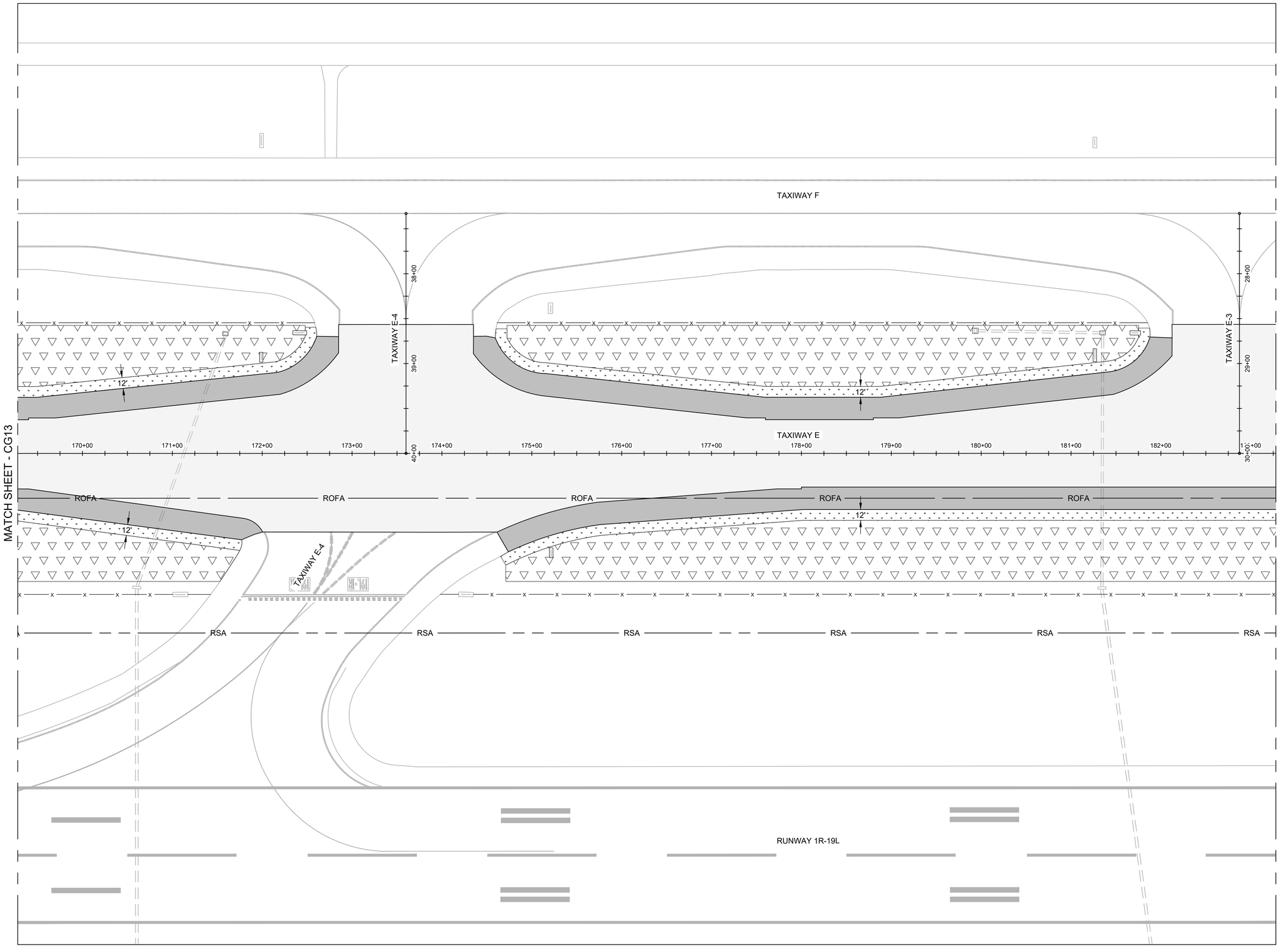

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3. CONTRACTOR SHALL INSPECT THE ENTIRE CONSTRUCTION SITE AND EROSION CONTROL MEASURES AT LEAST ONCE EVERY 14 DAYS AND WITHIN 24 HOURS AFTER A ½" OR GREATER STORM EVENT. CONTRACTOR SHALL MAINTAIN, REPAIR, OR REPLACE SITE EROSION CONTROL MEASURES TO THE SATISFACTION OF THE ENGINEER AT NO EXPENSE TO THE OWNER.

LEGEND

- SODDING LIMITS
- SEEDING AND MULCHING LIMIT
- PROPOSED PAVEMENTS
- SILT FENCE (1 / CG18)
- RSA — RUNWAY SAFETY AREA
- ROFA — RUNWAY OBJECT FREE AREA
- EXISTING STORM PIPE

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

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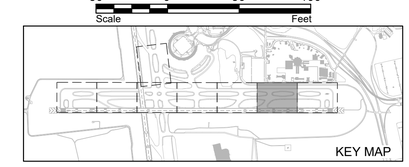
Scale Feet



No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
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715 Kirk Drive
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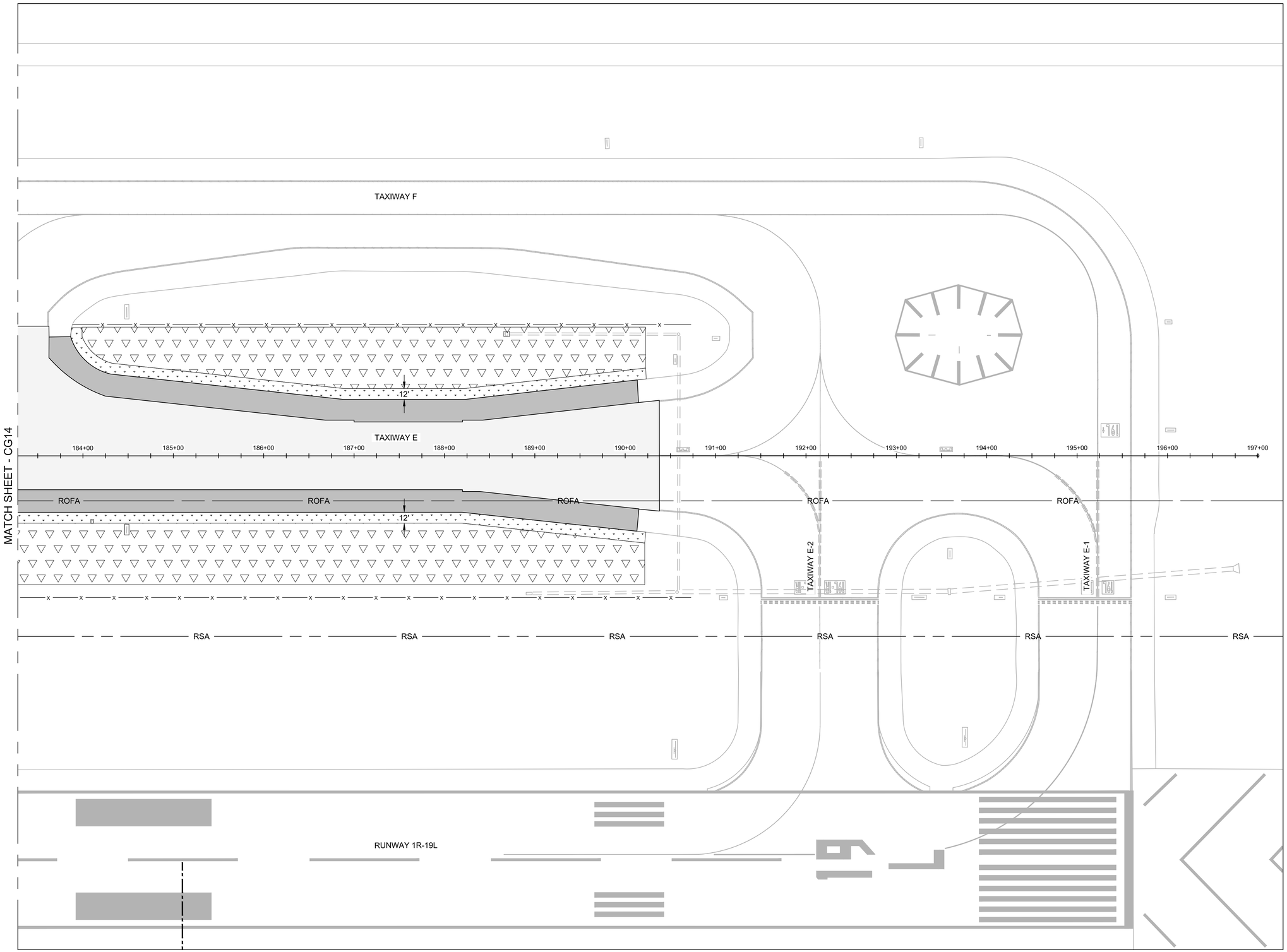
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

EROSION CONTROL PLAN

Design: MMW	CAD File:62230566CG09.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CG14 38 of 104

CAD File: 62230566CG09.dwg



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STATE OF MISSOURI
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50 0 50 100
Scale Feet

KEY MAP

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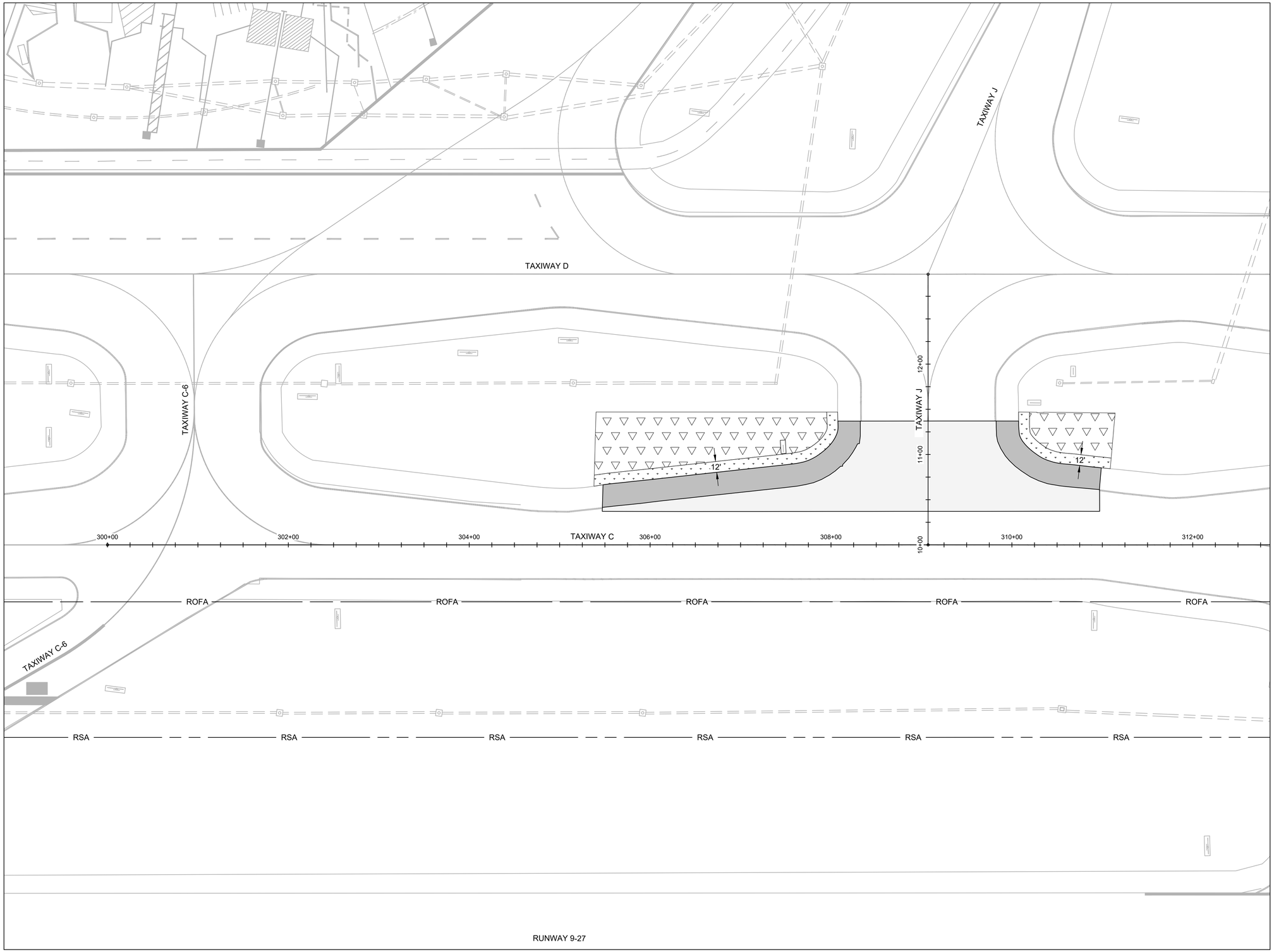
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

EROSION CONTROL PLAN

Design: MMW	CAD File:62230566CG09.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CG15 39 of 104

CAD File: 62230566CG09.dwg



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STATE OF MISSOURI
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N

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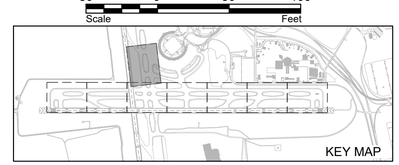

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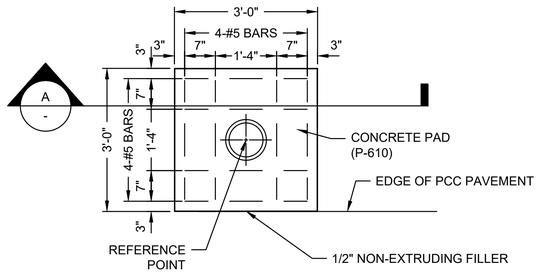
TAXIWAY E AND TAXIWAY J REHABILITATION

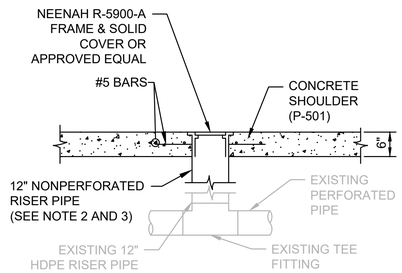
EROSION CONTROL PLAN

Design: MMW	CAD File:62230566CG09.dwg	Aviation Project No.	62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	CG16 40 of 104

CAD File: 62230566CG09.dwg



PLAN



SECTION A-A

CONCRETE PAD NOTES:

1. CLEANOUT FRAME AND COVER SHALL BE DUCTILE IRON TO ACCOMMODATE HEAVY AIRCRAFT LOADINGS.
2. NO LOAD SHALL BE TRANSFERED FROM MANHOLE FRAME TO 12" PVC RISER PIPE.
3. 12" RISER PIPE ELEVATION MODIFICATIONS AND PROTECTION DURING CONSTRUCTION SHALL BE INCIDENTAL TO CLEANOUT STRUCTURE.
4. FOR CLEANOUT CONCRETE PADS CONSTRUCTED IN CONCRETE PAVEMENT, 1/2" EXPANSION MATERIAL SHALL BE REQUIRED.

1 UNDERDRAIN CLEANOUT IN SHOULDER

NOT TO SCALE

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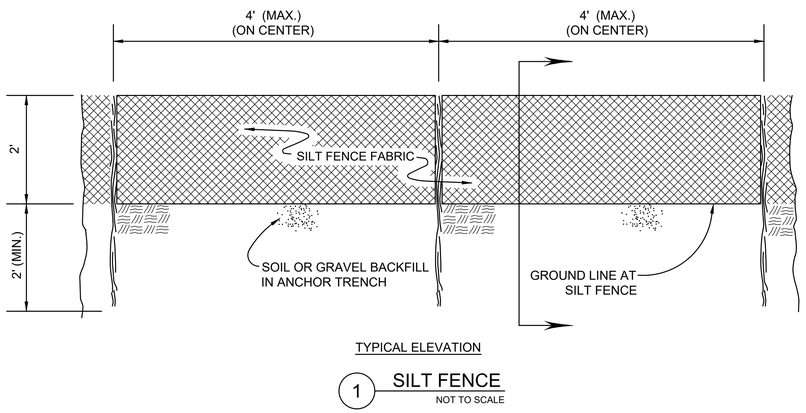
GRADING AND DRAINAGE DETAILS

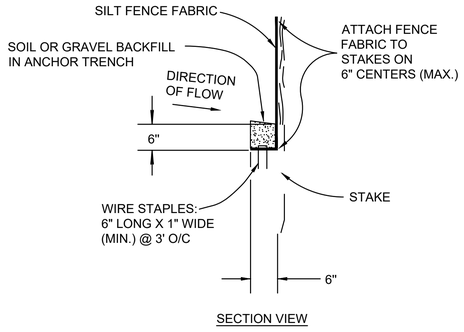
Design: MMW	CAD File:62230566CG17.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CG17 41 of 104

CAD File:



TYPICAL ELEVATION

1 SILT FENCE
NOT TO SCALE



SECTION VIEW

SILT FENCE NOTES:

1. STAKES SHALL BE 4' (MIN.) LONG AND OF ONE OF THE FOLLOWING MATERIALS:
   A. HARDWOOD - 1 3/16" X 1 3/16"
   B. SOUTHERN PINE (NO. 2) - 2 5/8" X 2 5/8"
2. ATTACH FENCE FABRIC TO STAKES WITH STAPLES, WIRE, OR NAILS.
3. SILT FENCE FABRIC SHALL BE ORANGE IN COLOR.

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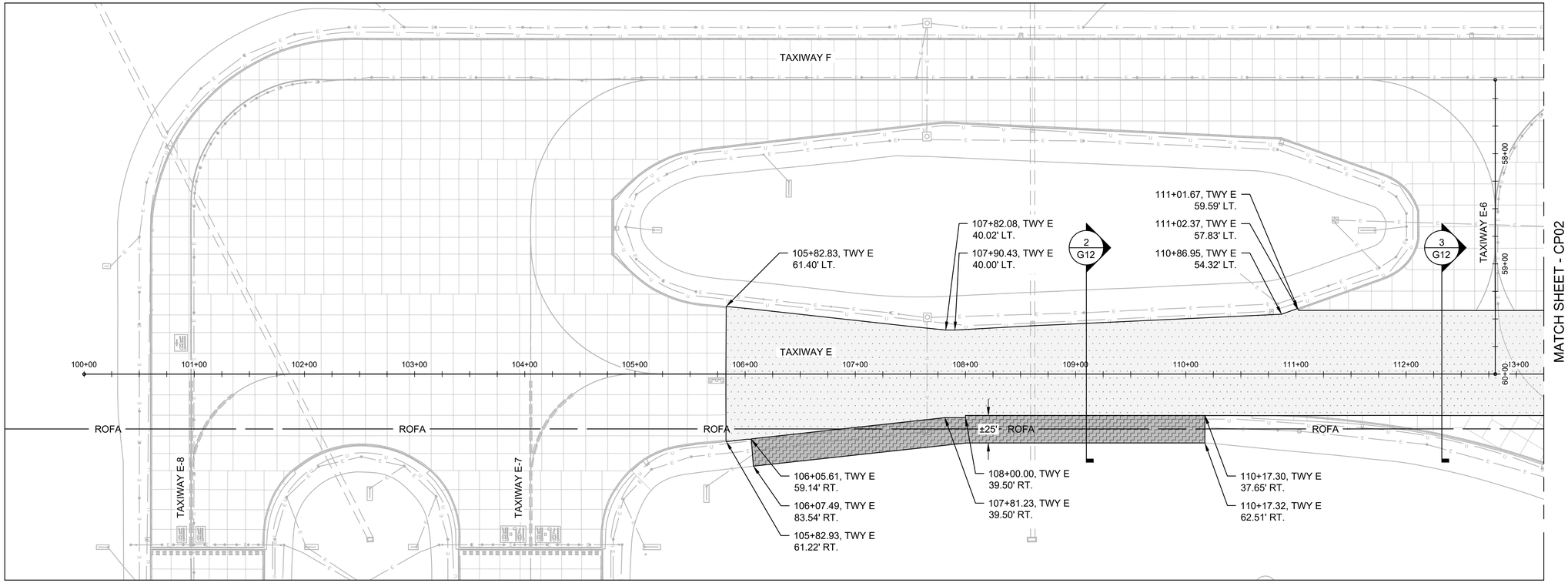
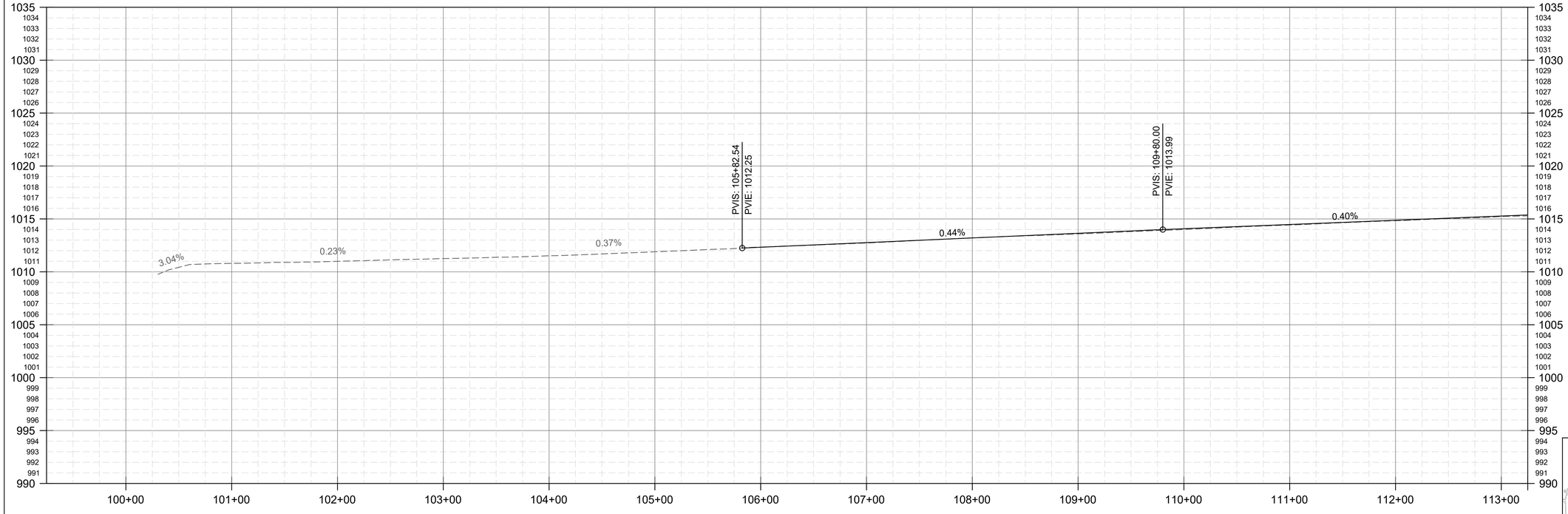
TAXIWAY E AND TAXIWAY J REHABILITATION

EROSION CONTROL DETAILS

Design: MMW	CAD File:62230566CG18.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CG18 42 of 104

CAD File:





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LEGEND

- 6" PCC
- 15" PCC
- ±17" PCC
- 2" HMA

EXISTING UTILITIES

- ELECTRICAL LINE
- FAA ELECTRICAL LINE
- UNDERDRAIN
- COMM LINE
- GAS LINE
- EXISTING PIPE

STATE OF MISSOURI
LYNETTE MELLETT
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PROFESSIONAL ENGINEER

50 0 50 100
Scale Feet

KEY MAP

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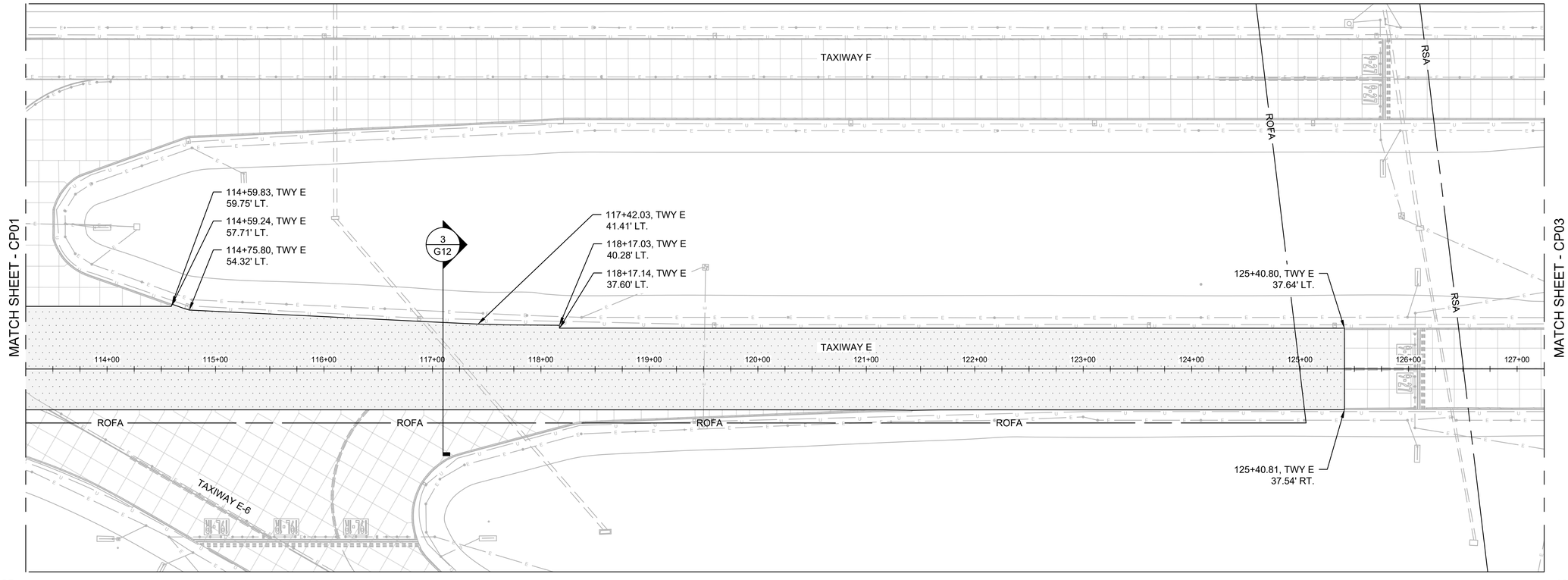
CITY OF FOUNTAINS HEARTS OF THE NATION
KANSAS CITY MISSOURI

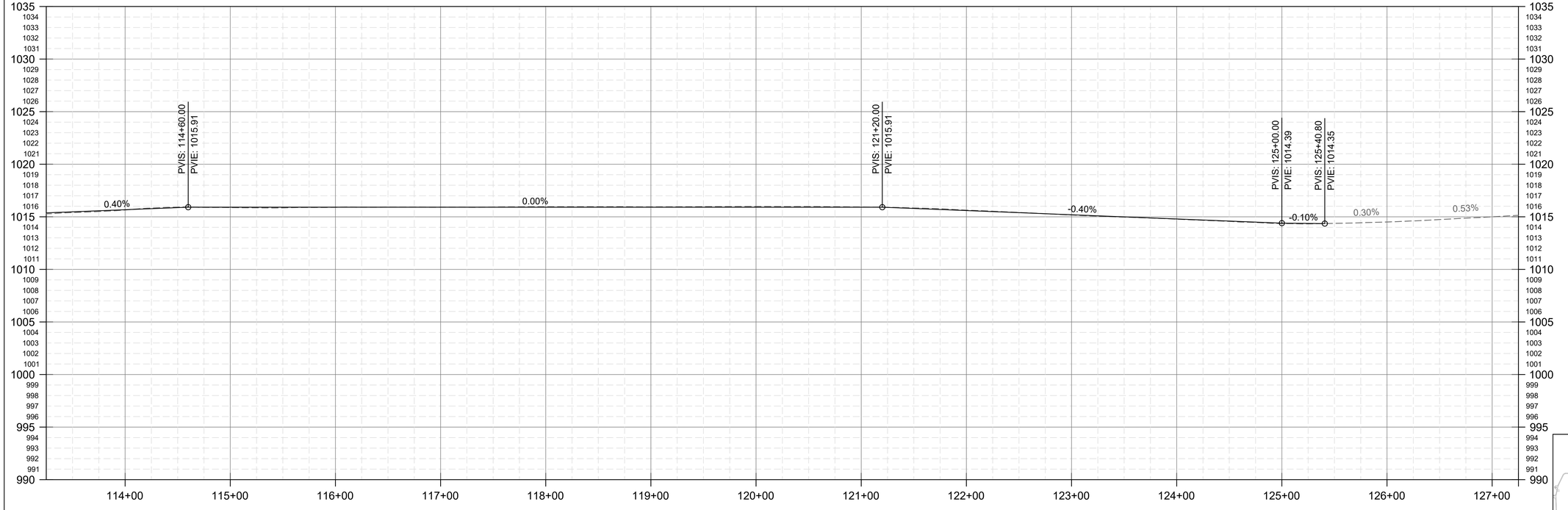
TAXIWAY E AND TAXIWAY J REHABILITATION

TAXIWAY E - PLAN AND PROFILE
STA. 105+82 TO STA. 113+25

Design: MMW	CAD File: 62230566CP01.dwg	Aviation Project No. 62230566	
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CP01	43 of 104

CAD File: 62230566CP01.dwg





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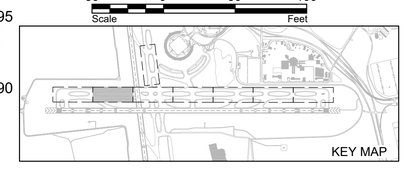
STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

N

50 0 50 100
Scale Feet



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CITY OF FOUNTAINS
HEART OF THE NATION
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MISSOURI

TAXIWAY E AND TAXIWAY J
REHABILITATION

TAXIWAY E - PLAN AND PROFILE
STA. 113+25 TO STA. 127+25

Design: MMW	CAD File: 62230566CP01.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CP02 44 of 104

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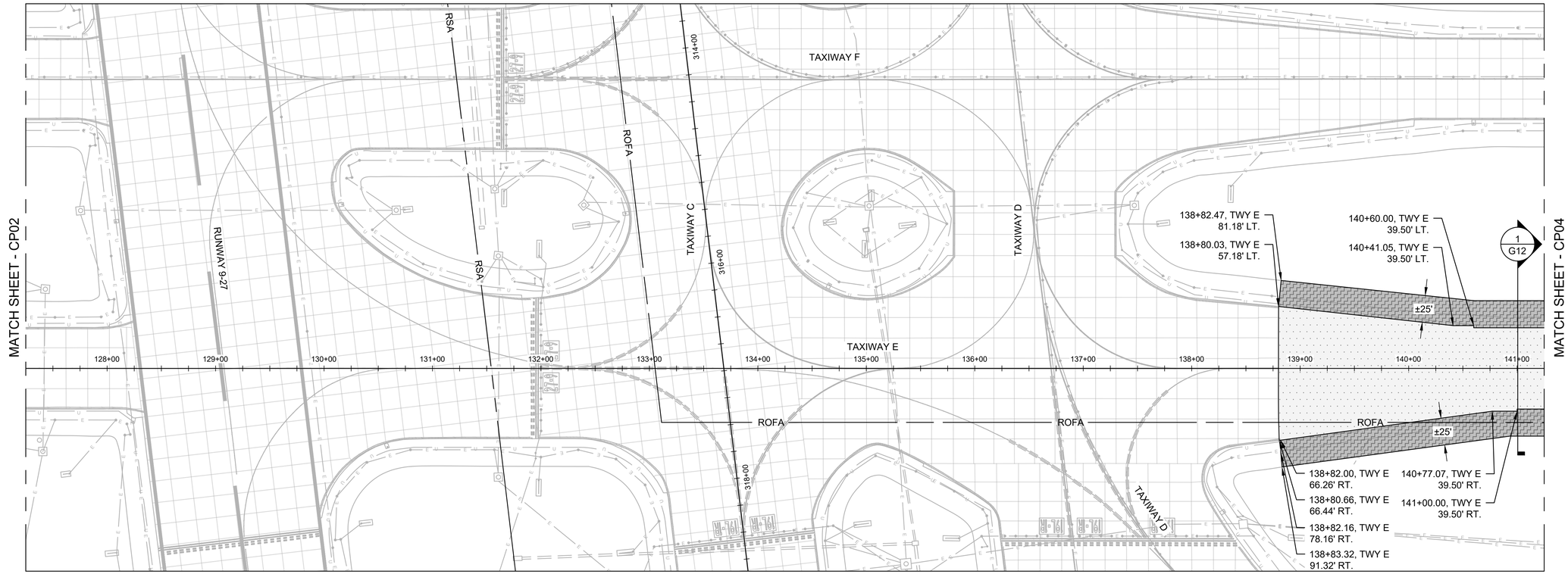

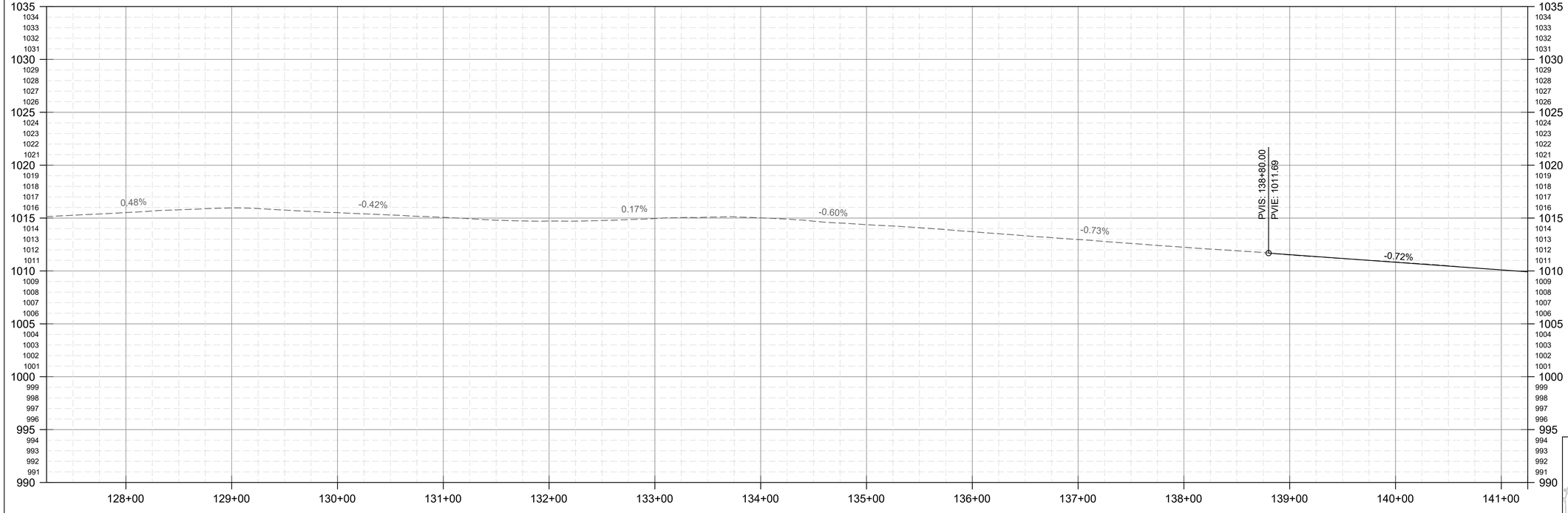

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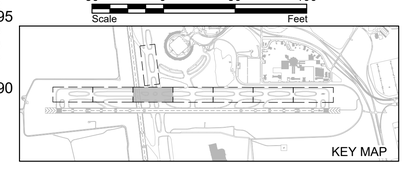

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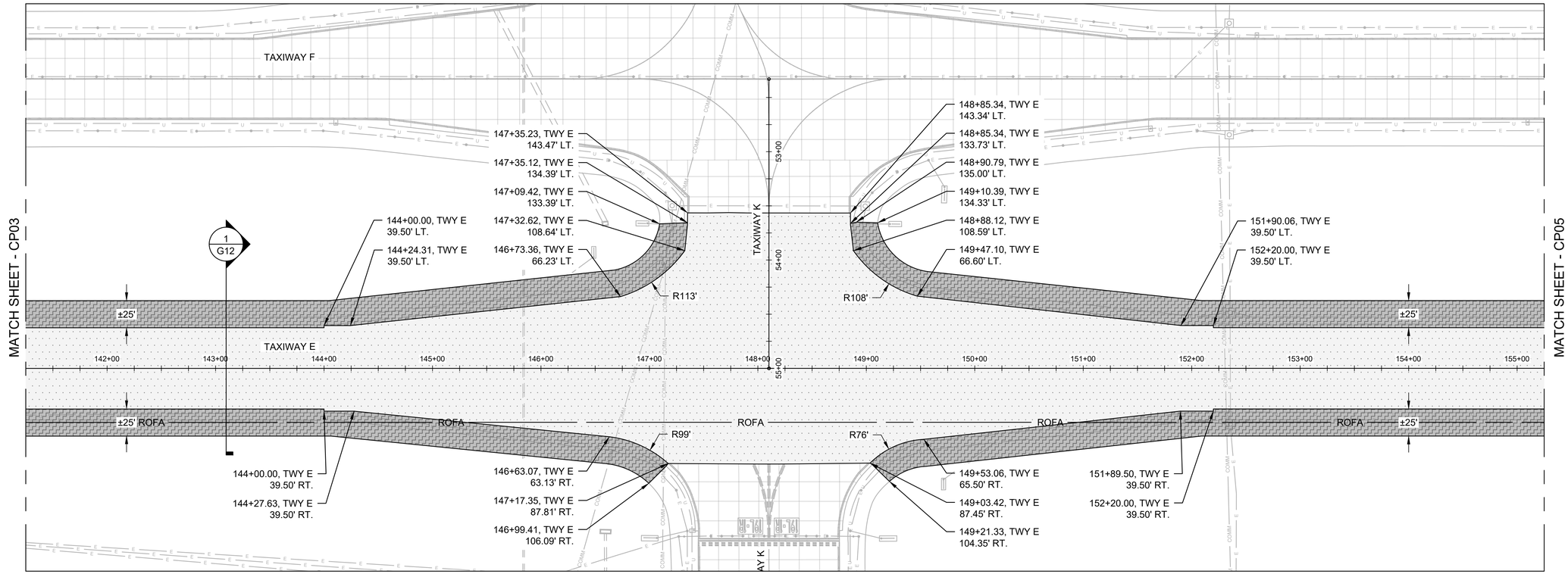
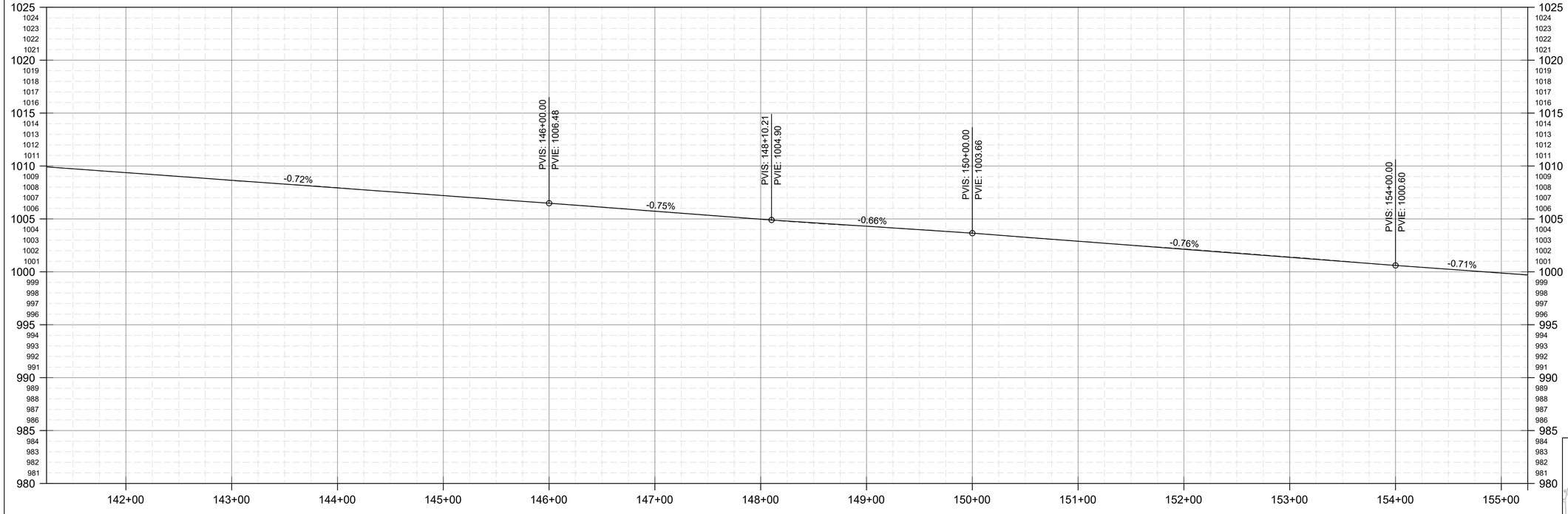
TAXIWAY E AND TAXIWAY J REHABILITATION

TAXIWAY E - PLAN AND PROFILE
STA. 127+25 TO STA. 141+25

Design: MMW	CAD File: 62230566CP01.dwg	Aviation Project No. 62230566	
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CP03	45 of 104

CAD File: 62230566CP01.dwg





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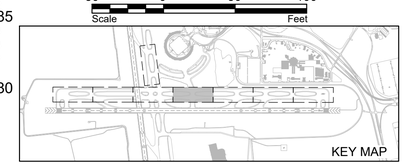

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REHABILITATION

TAXIWAY E - PLAN AND PROFILE
STA. 141+25 TO STA. 155+25

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Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	CP04 46 of 104

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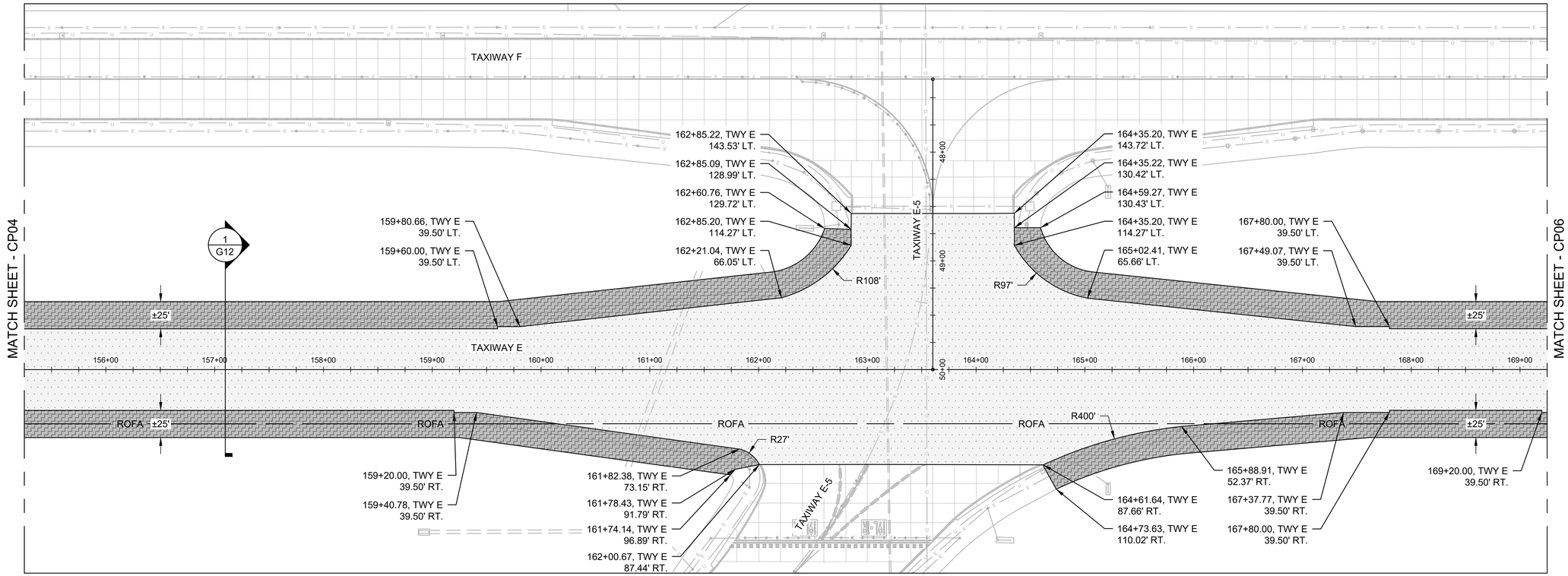

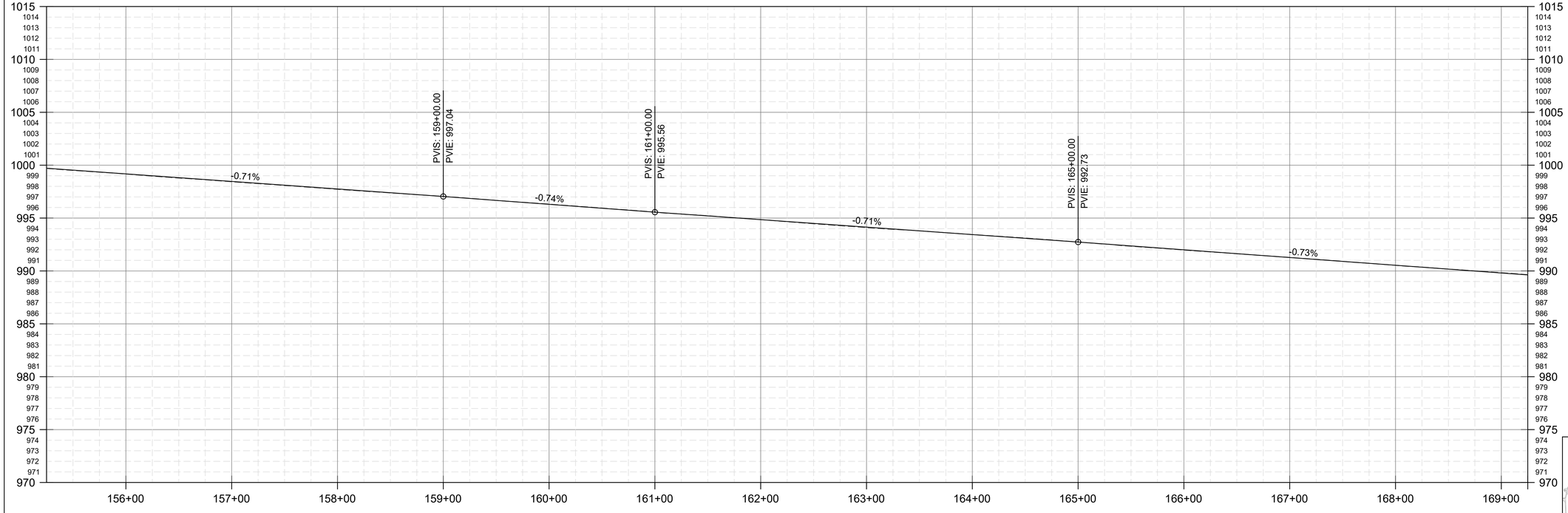

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3. SEE ED AND EL SHEETS FOR EXISTING ELECTRICAL DEMOLITION AND PROPOSED ELECTRICAL UTILITIES.

LEGEND

- 6" PCC
- 15" PCC
- ±17" PCC
- 2" HMA

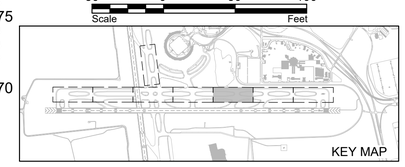
EXISTING UTILITIES

- ELECTRICAL LINE
- FAA ELECTRICAL LINE
- UNDERDRAIN
- COMM LINE
- GAS LINE
- EXISTING PIPE

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

N

50 0 50 100
Scale Feet



No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
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KCI

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715 Kirk Drive
Kansas City, MO 64105
Licensee No. 001270

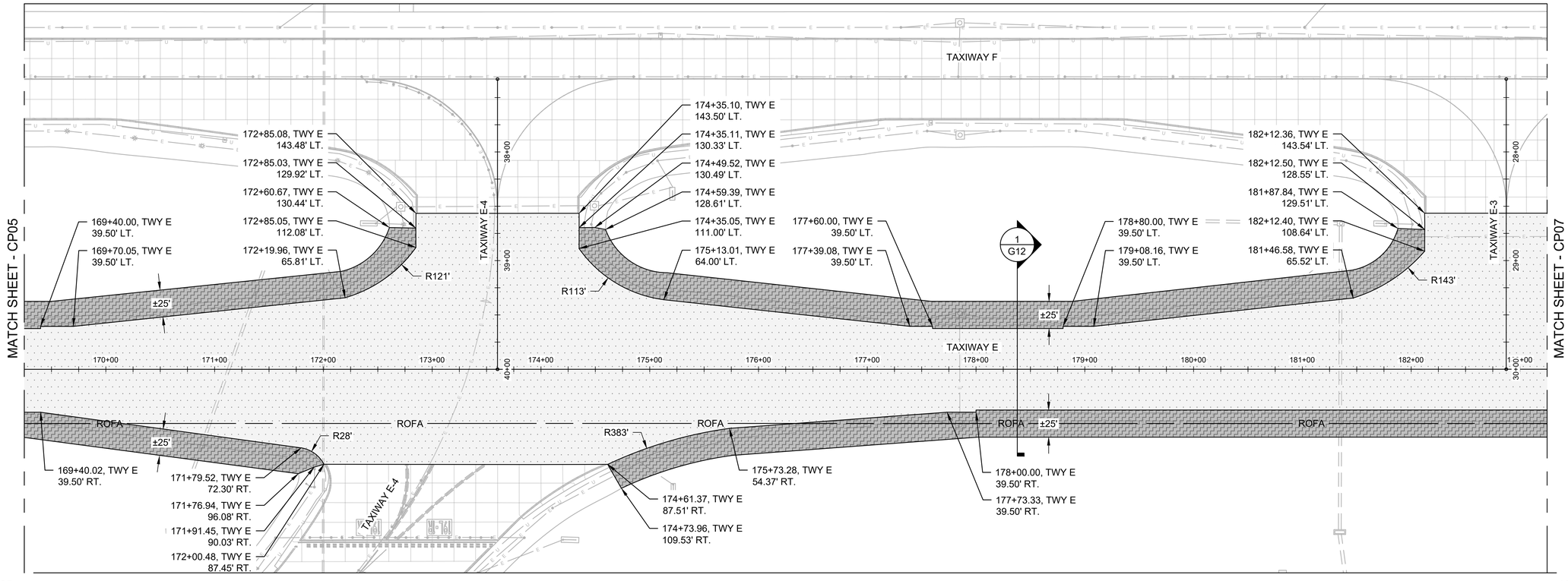
CITY OF FOUNTAINS
HEART OF THE NATION
KANSAS CITY
MISSOURI

TAXIWAY E AND TAXIWAY J
REHABILITATION

TAXIWAY E - PLAN AND PROFILE
STA. 155+25 TO STA. 169+25

Design: MMW	CAD File: 62230566CP01.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CP05 47 of 104

CAD File: 62230566CP01.dwg



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LEGEND

- 6" PCC
- 15" PCC
- ±17" PCC
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EXISTING UTILITIES

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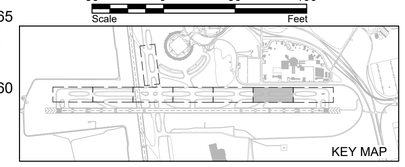
- GAS LINE
- EXISTING PIPE

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

N

50 0 50 100
Scale Feet



No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
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KCI

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Kansas City, MO 64105
Licensee No. 001270

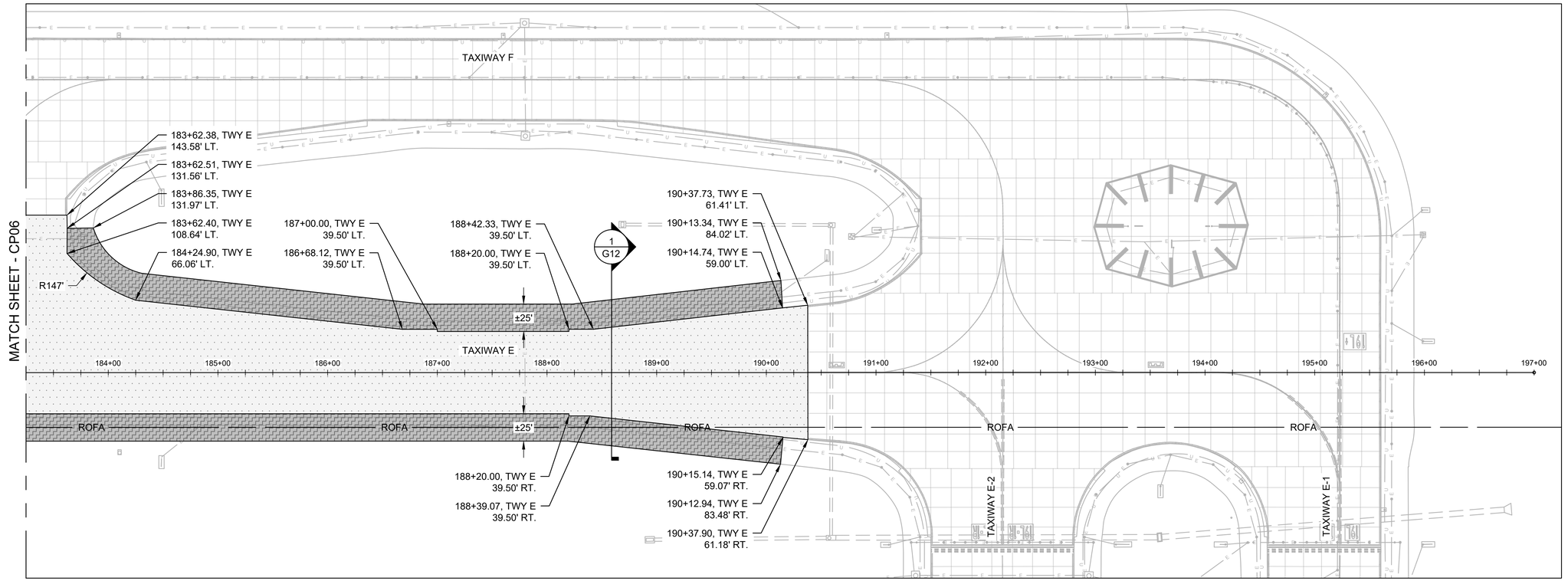
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

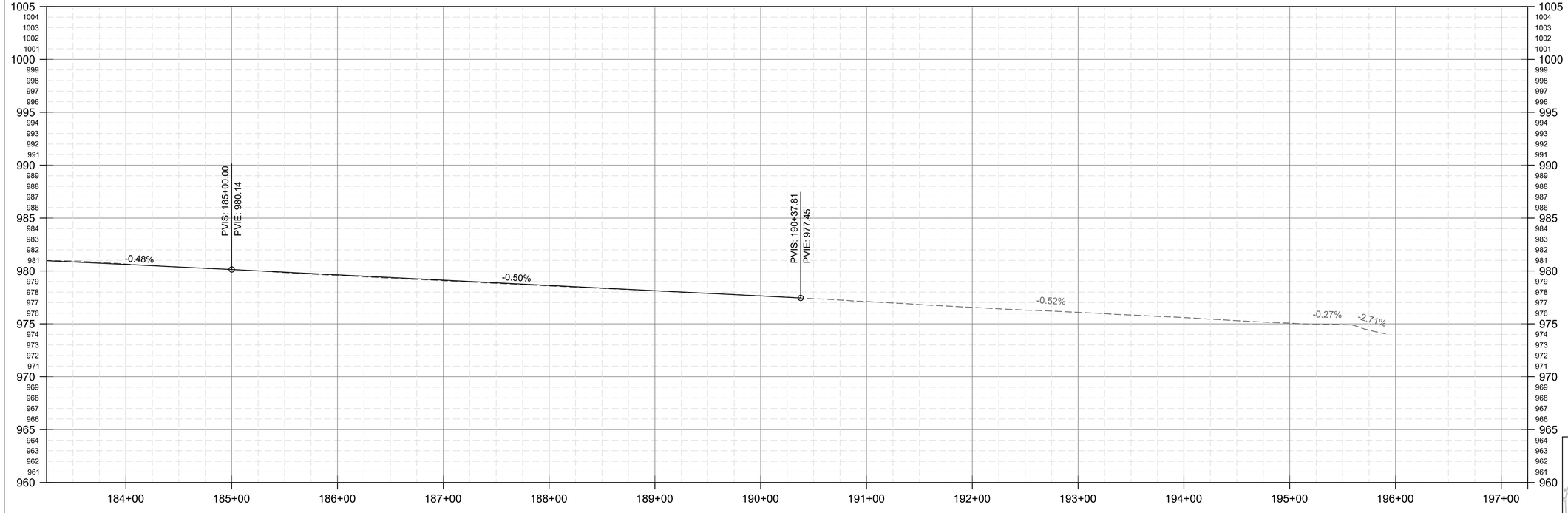
TAXIWAY E AND TAXIWAY J REHABILITATION

TAXIWAY E - PLAN AND PROFILE
STA. 169+25 TO STA. 183+25

Design: MMW	CAD File: 62230566CP01.dwg	Aviation Project No.	62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	CP06 48 of 104

CAD File: 62230566CP01.dwg





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LEGEND

- 6" PCC
- 15" PCC
- ±17" PCC
- 2" HMA

EXISTING UTILITIES

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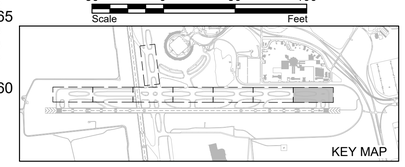
- FAA ELECTRICAL LINE
- UNDERDRAIN
- COMM LINE
- GAS LINE
- EXISTING PIPE

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

N

50 0 50 100
Scale Feet



No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
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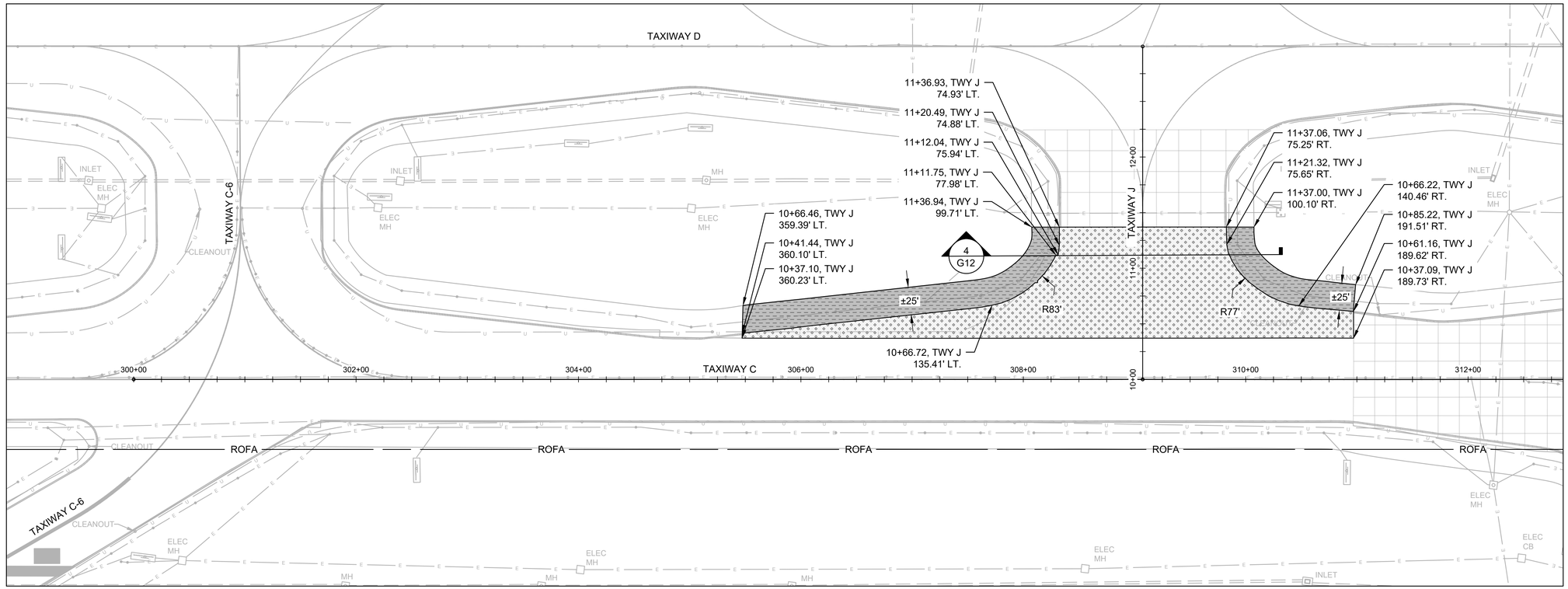
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

TAXIWAY E - PLAN AND PROFILE
STA. 183+25 TO STA. 190+38

Design: MMW	CAD File: 62230566CP01.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CP07 49 of 104

CAD File: 62230566CP01.dwg



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LEGEND

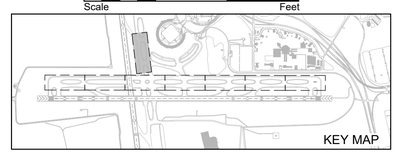
- 6" PCC
- 15" PCC
- ±17" PCC
- 2" HMA

EXISTING UTILITIES

- ELECTRICAL LINE
- FAA ELECTRICAL LINE
- UNDERDRAIN
- COMM LINE
- GAS LINE
- EXISTING PIPE

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

50 0 50 100
Scale Feet



No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
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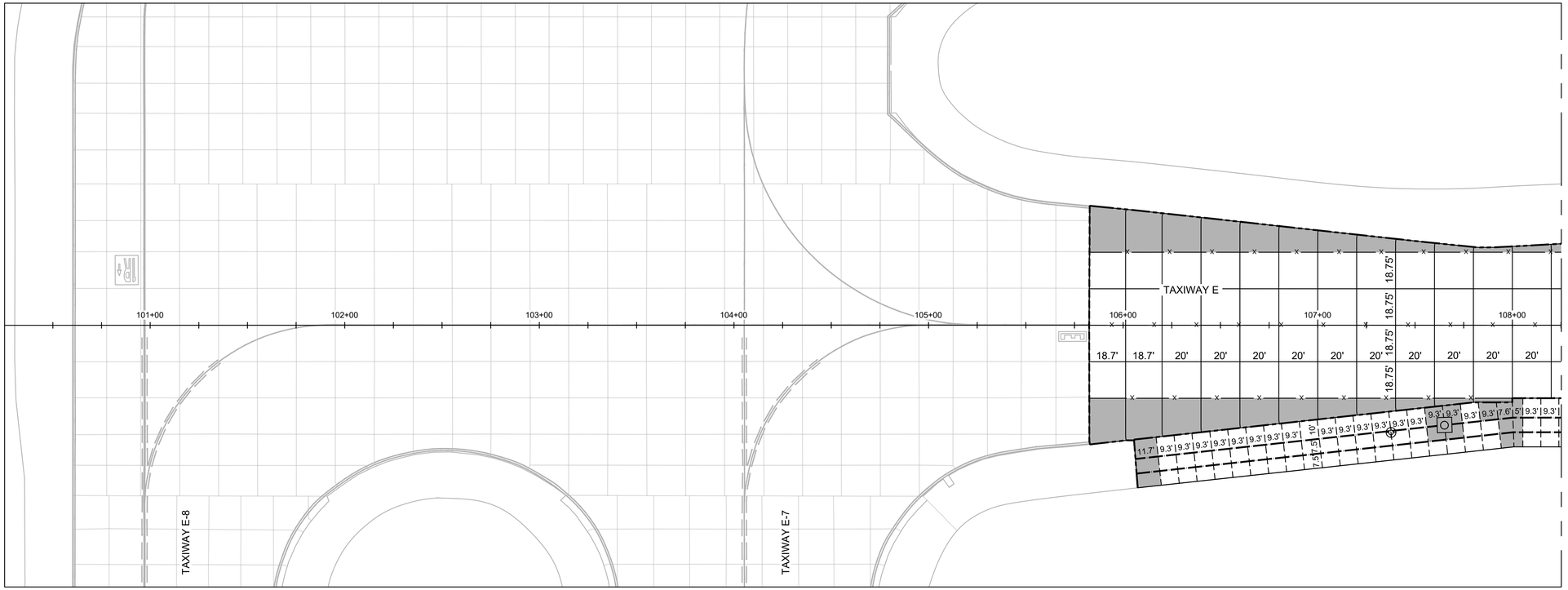
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

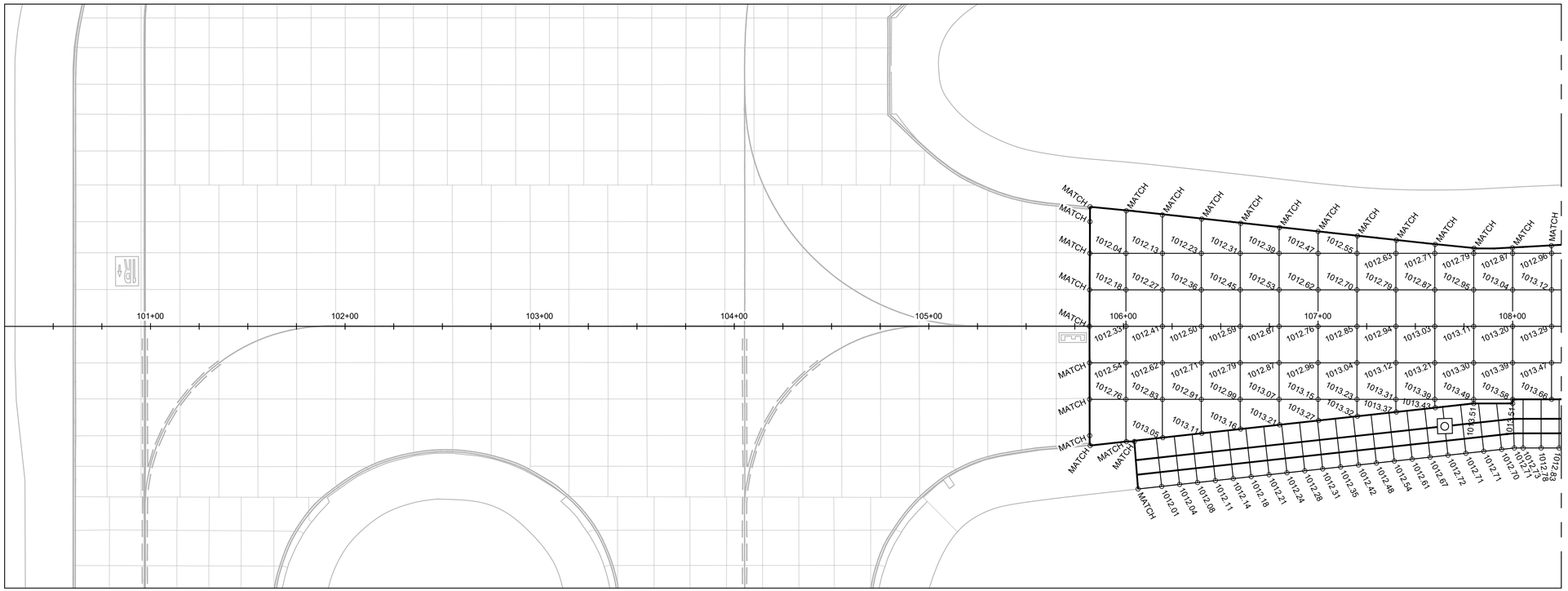
TAXIWAY J - PLAN

Design: MMW	CAD File:62230566CP01.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CP08 50 of 104

CAD File: 62230566CP01.dwg



JOINT LAYOUT



ELEVATION LAYOUT

NOTES:

1. IT IS THE INTENT OF THESE PLANS TO PROVIDE GUIDANCE FOR WHICH JOINTS ARE TO RECEIVE DOWELS AND NOT TO DICTATE THE CONTRACTOR'S MEANS AND METHODS FOR PAVING INSTALLATION. CONSTRUCTION AND CONTRACTION JOINTS MAY BE INTERCHANGEABLE SUBJECT TO ENGINEER'S APPROVAL OF A REVISED PAVING PLAN SUBMITTED BY THE CONTRACTOR.
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LEGEND:

- ISOLATION JOINT (1 / CJ14)
- DOWELED CONSTRUCTION JOINT (2 / CJ14)
- DOWELED CONTRACTION JOINT (3 / CJ14)
- MODIFIED ISOLATION JOINT (4 / CJ14)
- PCC/HMA JOINT (1 / CJ15)
- SHOULDER CONSTRUCTION JOINT (2 / CJ15)
- SHOULDER CONTRACTION JOINT (3 / CJ15)
- PCCP REINFORCEMENT
- ELECTRICAL FIXTURE
- UNDERDRAIN CLEANOUT
- ELECTRICAL FIXTURE BLOCK OUT (4 / EL11)
- EXISTING ELECTRICAL MANHOLE



30 0 30 60
Scale Feet

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER



No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT
KCI

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715 Kirk Drive
Kansas City, MO 64105
Licensee No. 001270

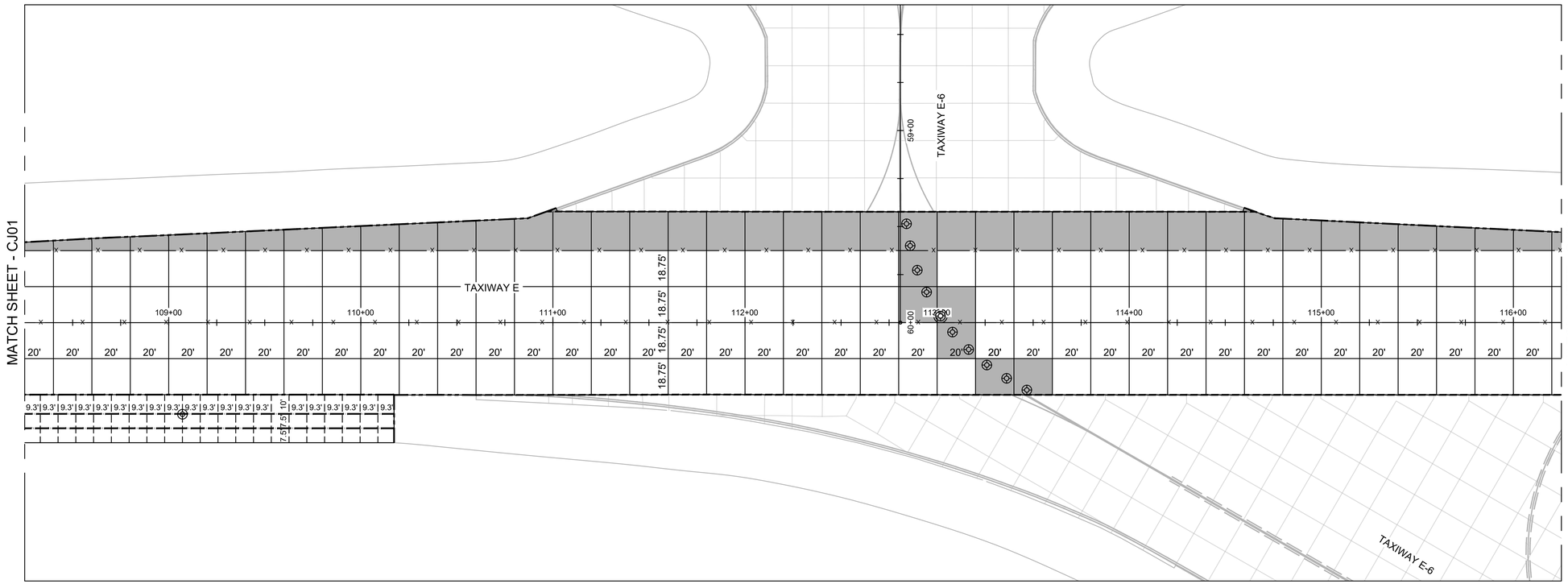
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J
REHABILITATION

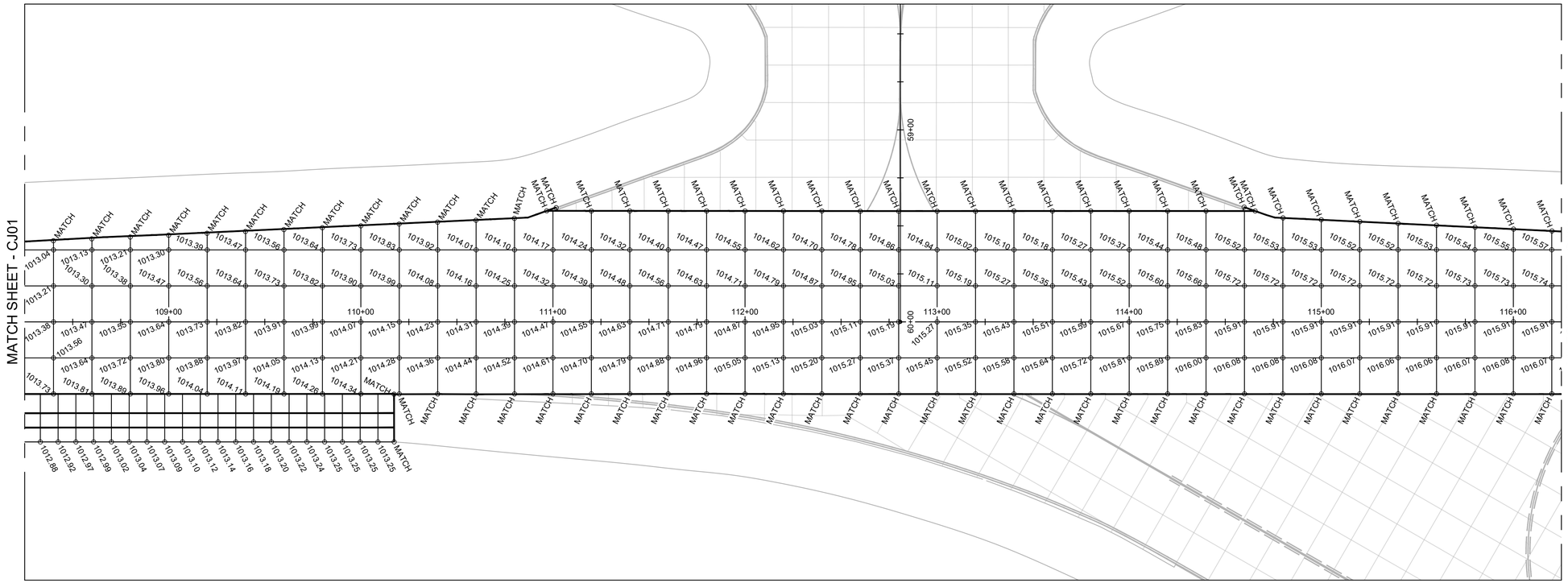
TAXIWAY E
JOINT LAYOUT AND ELEVATION PLAN
STA. 105+82 TO STA. 108+18

Design: MMW	CAD File:62230566CJ01.dwg	Aviation Project No.	62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	CJ01 51 of 104

CAD File: 62230566CJ01.dwg



JOINT LAYOUT



ELEVATION LAYOUT

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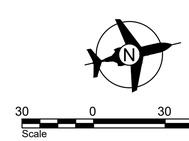
LEGEND:

- ISOLATION JOINT (1 CJ14)
- DOWELED CONSTRUCTION JOINT (2 CJ14)
- DOWELED CONTRACTION JOINT (3 CJ14)
- MODIFIED ISOLATION JOINT (4 CJ14)
- PCC/HMA JOINT (1 CJ15)
- SHOULDER CONSTRUCTION JOINT (2 CJ15)
- SHOULDER CONTRACTION JOINT (3 CJ15)
- PCCP REINFORCEMENT
- ELECTRICAL FIXTURE
- UNDERDRAIN CLEANOUT
- ELECTRICAL FIXTURE BLOCK OUT (4 EL11)
- EXISTING ELECTRICAL MANHOLE



30 0 30 60
Scale Feet



No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
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KCI

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Kansas City, MO 64105
Licensee No. 001270

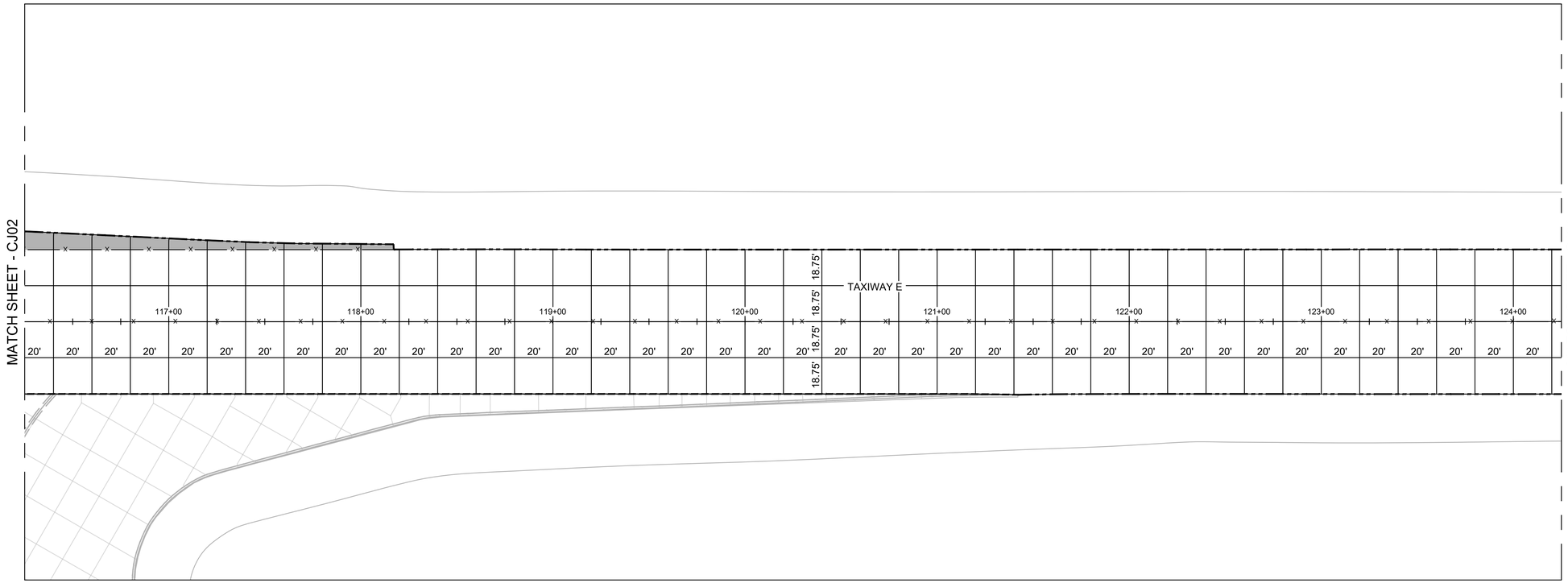
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

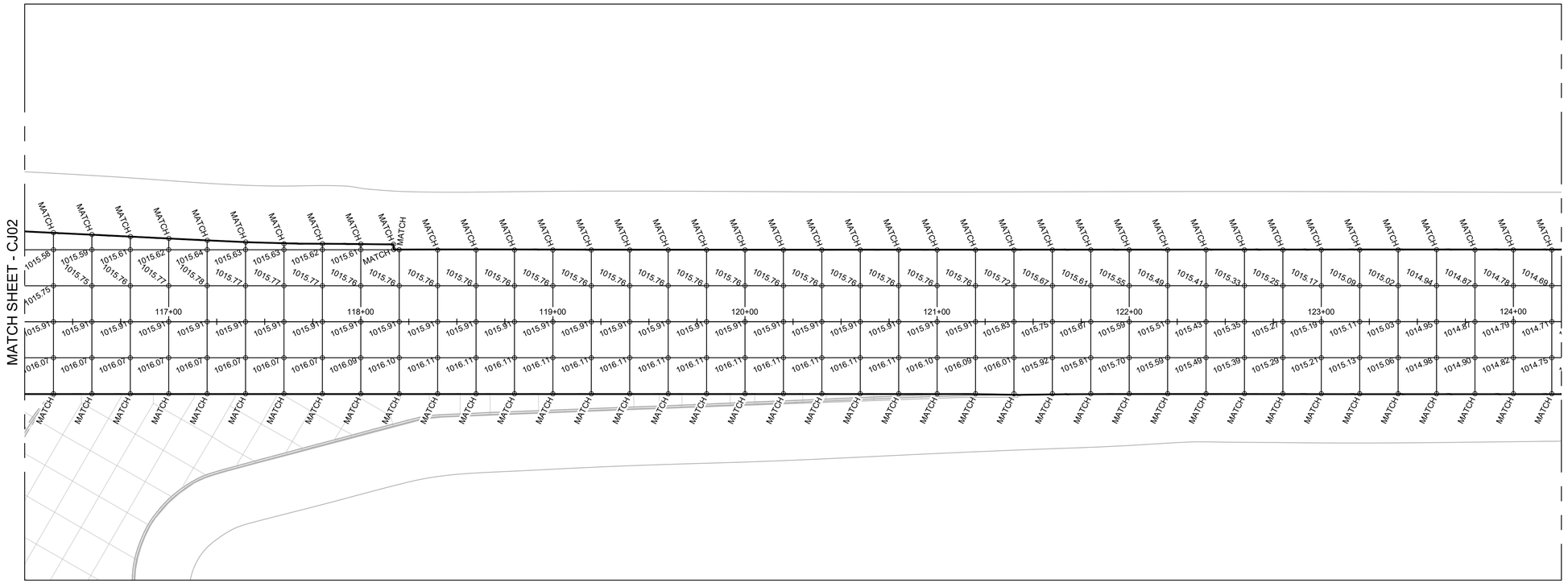
TAXIWAY E
JOINT LAYOUT AND ELEVATION PLAN
STA. 108+18 TO STA. 116+18

Design: MMW	CAD File:62230566CJ01.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CJ02 52 of 104

CAD File: 62230566CJ01.dwg



JOINT LAYOUT



ELEVATION LAYOUT

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LEGEND:

- ISOLATION JOINT (1 / CJ14)
- DOWELED CONSTRUCTION JOINT (2 / CJ14)
- DOWELED CONTRACTION JOINT (3 / CJ14)
- MODIFIED ISOLATION JOINT (4 / CJ14)
- PCC/HMA JOINT (1 / CJ15)
- SHOULDER CONSTRUCTION JOINT (2 / CJ15)
- SHOULDER CONTRACTION JOINT (3 / CJ15)
- PCCP REINFORCEMENT
- ELECTRICAL FIXTURE
- UNDERDRAIN CLEANOUT
- ELECTRICAL FIXTURE BLOCK OUT (4 / EL11)
- EXISTING ELECTRICAL MANHOLE

30 0 30 60
Scale Feet

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER



No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT
KCI

HNTB
715 Kirk Drive
Kansas City, MO 64105
Licensee No. 001270

CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

TAXIWAY E
JOINT LAYOUT AND ELEVATION PLAN
STA. 116+18 TO STA. 124+18

Design: MMW	CAD File:62230566CJ01.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CJ03 53 of 104

CAD File: 62230566CJ01.dwg



JOINT LAYOUT



ELEVATION LAYOUT

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LEGEND:

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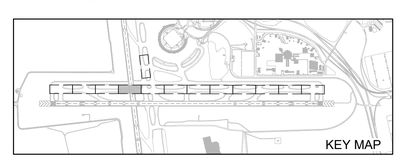
- DOWELED CONSTRUCTION JOINT (2 / CJ14)
- DOWELED CONTRACTION JOINT (3 / CJ14)
- MODIFIED ISOLATION JOINT (4 / CJ14)
- PCC/HMA JOINT (1 / CJ15)
- SHOULDER CONSTRUCTION JOINT (2 / CJ15)
- SHOULDER CONTRACTION JOINT (3 / CJ15)
- PCCP REINFORCEMENT
- ELECTRICAL FIXTURE
- UNDERDRAIN CLEANOUT
- ELECTRICAL FIXTURE BLOCK OUT (4 / EL11)
- EXISTING ELECTRICAL MANHOLE

30 0 30 60
Scale Feet

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER



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Licensee No. 001270

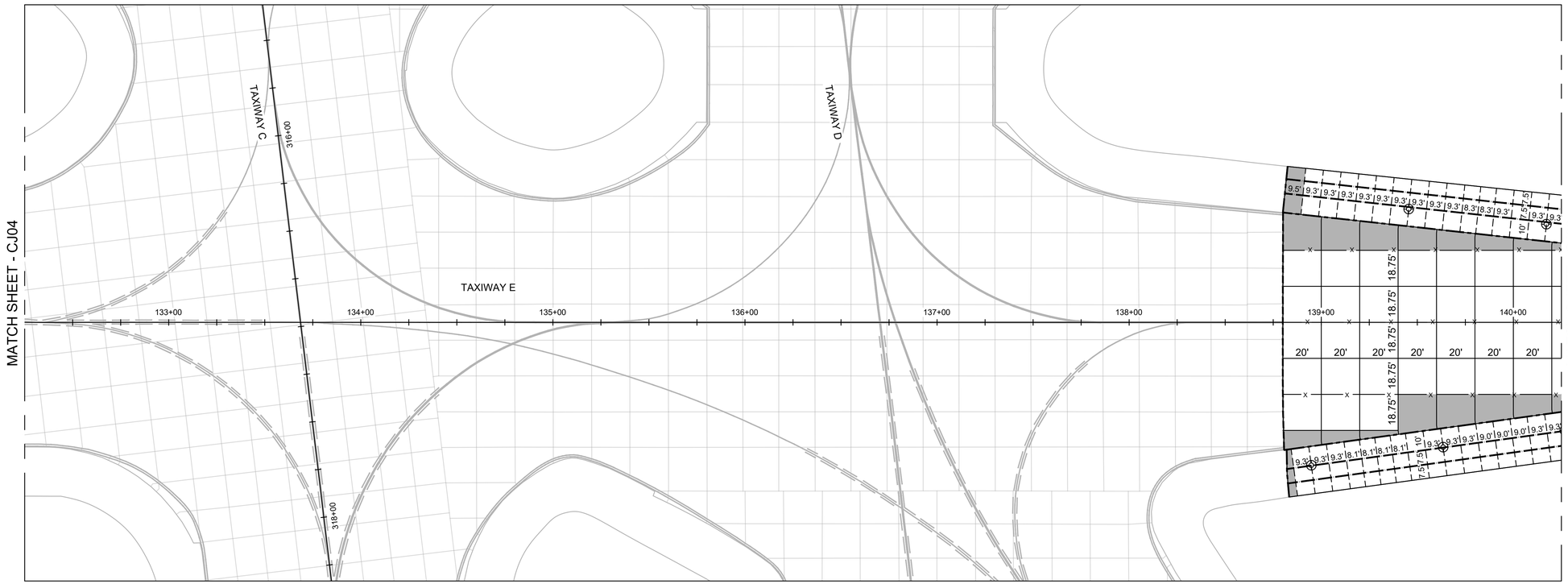
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

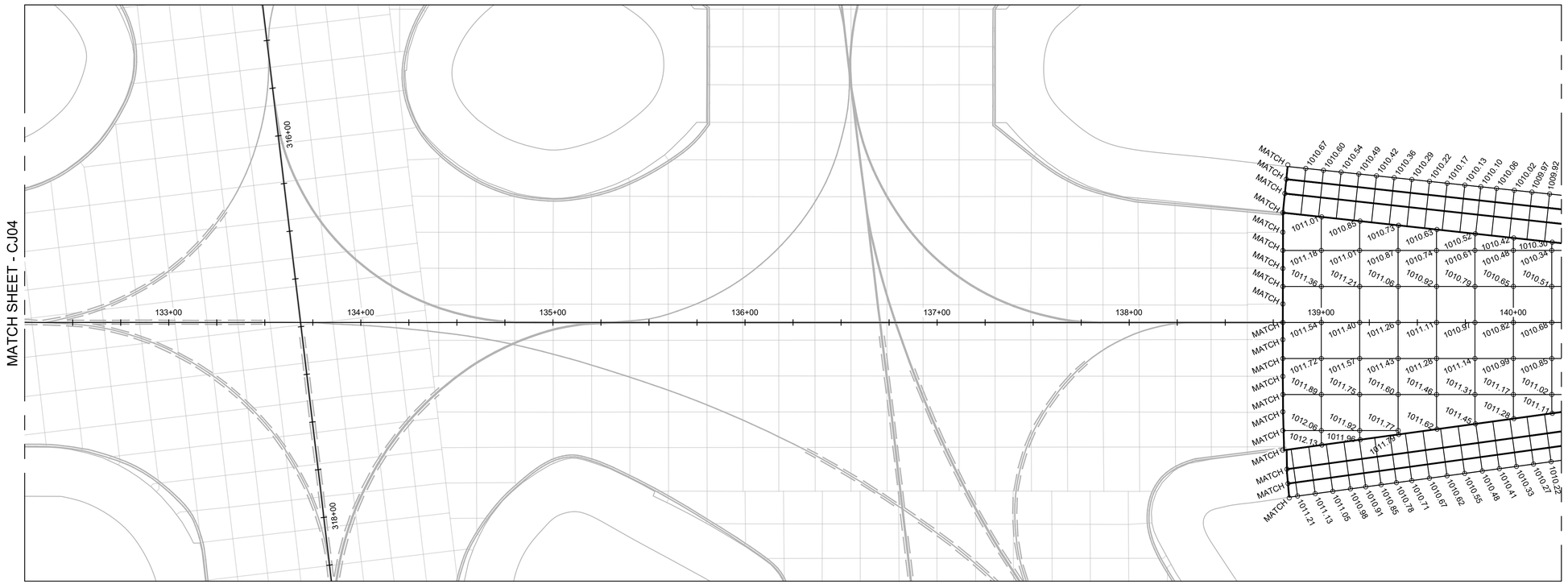
TAXIWAY E
JOINT LAYOUT AND ELEVATION PLAN
STA. 124+18 TO STA. 132+18

Design: MMW	CAD File:62230566CJ01.dwg	Aviation Project No.	62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	CJ04 54 of 104

CAD File: 62230566CJ01.dwg



JOINT LAYOUT



ELEVATION LAYOUT

NOTES:

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2. REINFORCING STEEL IS REQUIRED FOR ALL PANELS THAT EXCEED A 1.25 TO 1 LENGTH TO WIDTH RATIO OR HAVE A NON-RECTANGULAR SHAPE.
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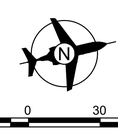
LEGEND:

- ISOLATION JOINT (1 / CJ14)
- DOWELED CONSTRUCTION JOINT (2 / CJ14)
- DOWELED CONTRACTION JOINT (3 / CJ14)
- MODIFIED ISOLATION JOINT (4 / CJ14)
- PCC/HMA JOINT (1 / CJ15)
- SHOULDER CONSTRUCTION JOINT (2 / CJ15)
- SHOULDER CONTRACTION JOINT (3 / CJ15)
- PCCP REINFORCEMENT
- ELECTRICAL FIXTURE
- UNDERDRAIN CLEANOUT
- ELECTRICAL FIXTURE BLOCK OUT (4 / EL11)
- EXISTING ELECTRICAL MANHOLE



30 0 30 60
Scale Feet

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER



No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT
KCI

HNTB
715 Kirk Drive
Kansas City, MO 64105
Licensee No. 001270

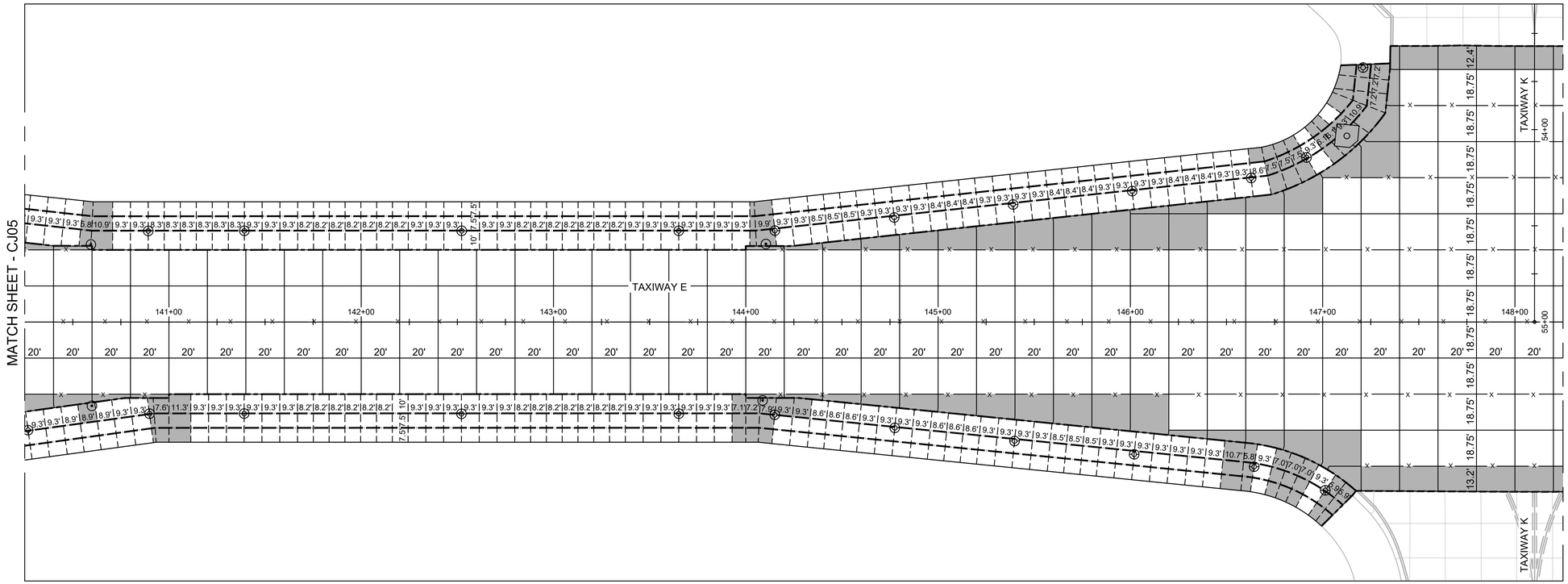
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

TAXIWAY E
JOINT LAYOUT AND ELEVATION PLAN
STA. 132+18 TO STA. 140+18

Design: MMW	CAD File:62230566CJ01.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CJ05 55 of 104

CAD File: 62230566CJ01.dwg



JOINT LAYOUT

NOTES:

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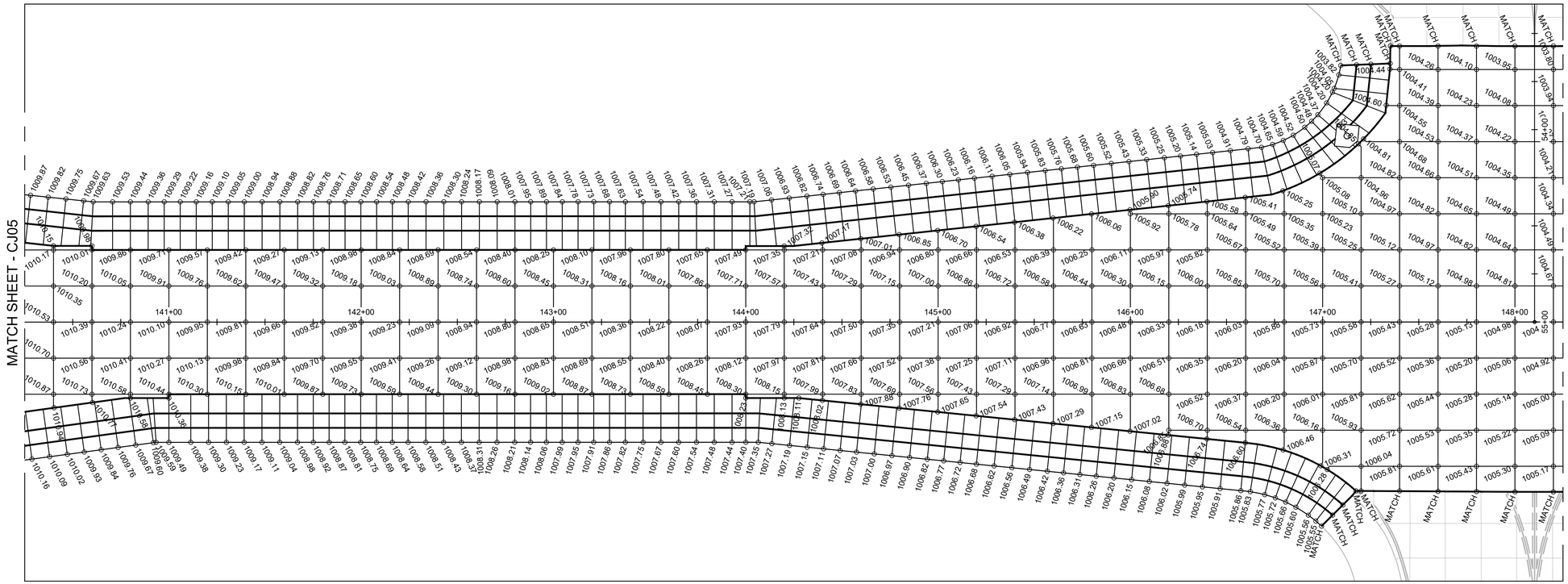
LEGEND:

- ISOLATION JOINT (1 CJ14)
- DOWELED CONSTRUCTION JOINT (2 CJ14)
- DOWELED CONTRACTION JOINT (3 CJ14)
- MODIFIED ISOLATION JOINT (4 CJ14)
- PCC/HMA JOINT (1 CJ15)
- SHOULDER CONSTRUCTION JOINT (2 CJ15)
- SHOULDER CONTRACTION JOINT (3 CJ15)
- PCCP REINFORCEMENT
- ELECTRICAL FIXTURE
- UNDERDRAIN CLEANOUT
- ELECTRICAL FIXTURE BLOCK OUT (4 EL11)
- EXISTING ELECTRICAL MANHOLE



ELEVATION LAYOUT



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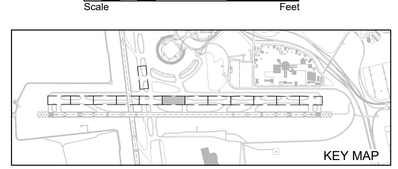
Scale Feet



No.	Revision	Date

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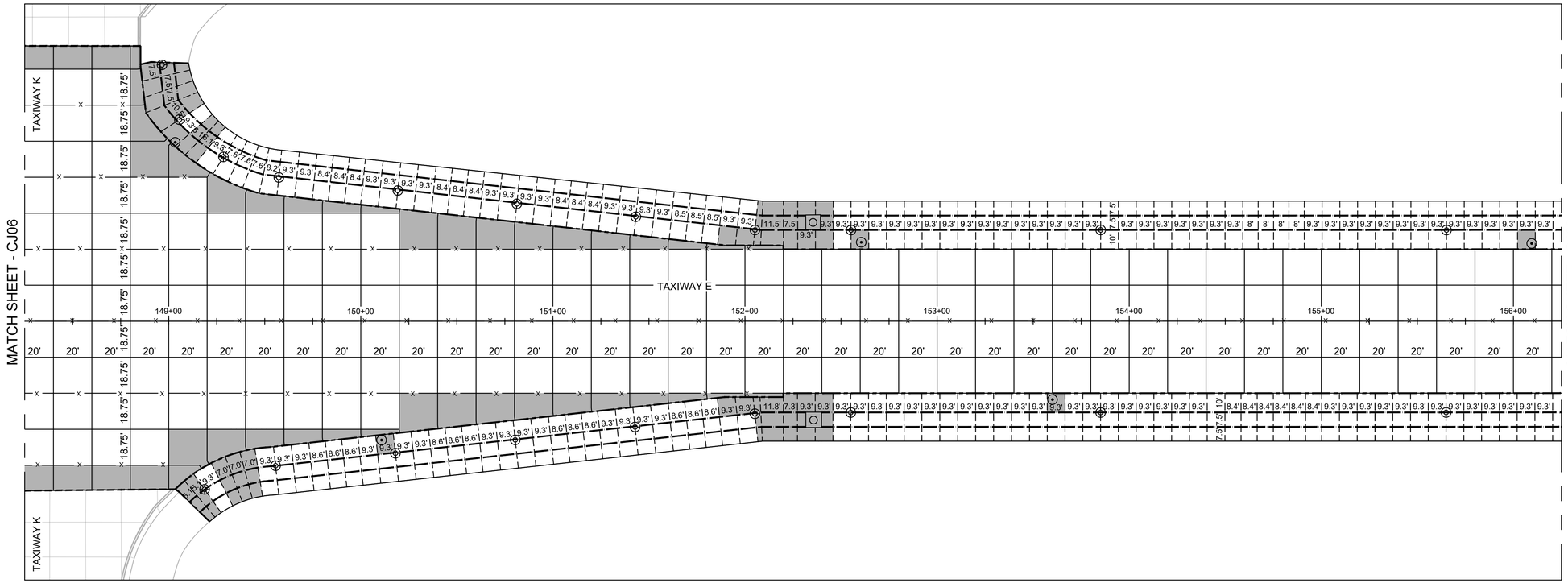
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

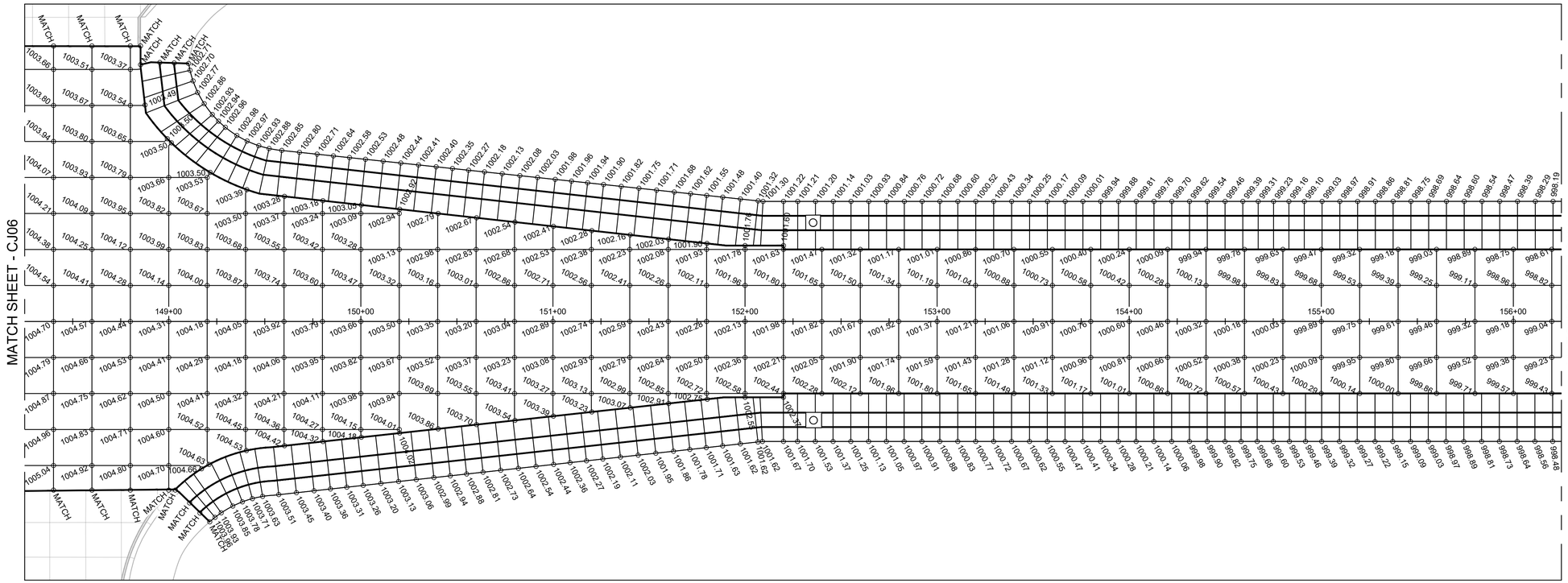
TAXIWAY E
JOINT LAYOUT AND ELEVATION PLAN
STA. 140+18 TO STA. 148+18

Design: MMW	CAD File:62230566CJ01.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CJ06 56 of 104

CAD File: 62230566CJ01.dwg



JOINT LAYOUT



ELEVATION LAYOUT

NOTES:

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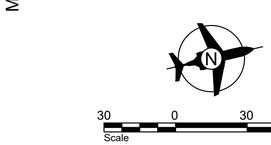
LEGEND:

- ISOLATION JOINT (1 CJ14)
- DOWELED CONSTRUCTION JOINT (2 CJ14)
- DOWELED CONTRACTION JOINT (3 CJ14)
- MODIFIED ISOLATION JOINT (4 CJ14)
- PCC/HMA JOINT (1 CJ15)
- SHOULDER CONSTRUCTION JOINT (2 CJ15)
- SHOULDER CONTRACTION JOINT (3 CJ15)
- PCCP REINFORCEMENT
- ELECTRICAL FIXTURE
- UNDERDRAIN CLEANOUT
- ELECTRICAL FIXTURE BLOCK OUT (4 EL11)
- EXISTING ELECTRICAL MANHOLE





No.	Revision	Date

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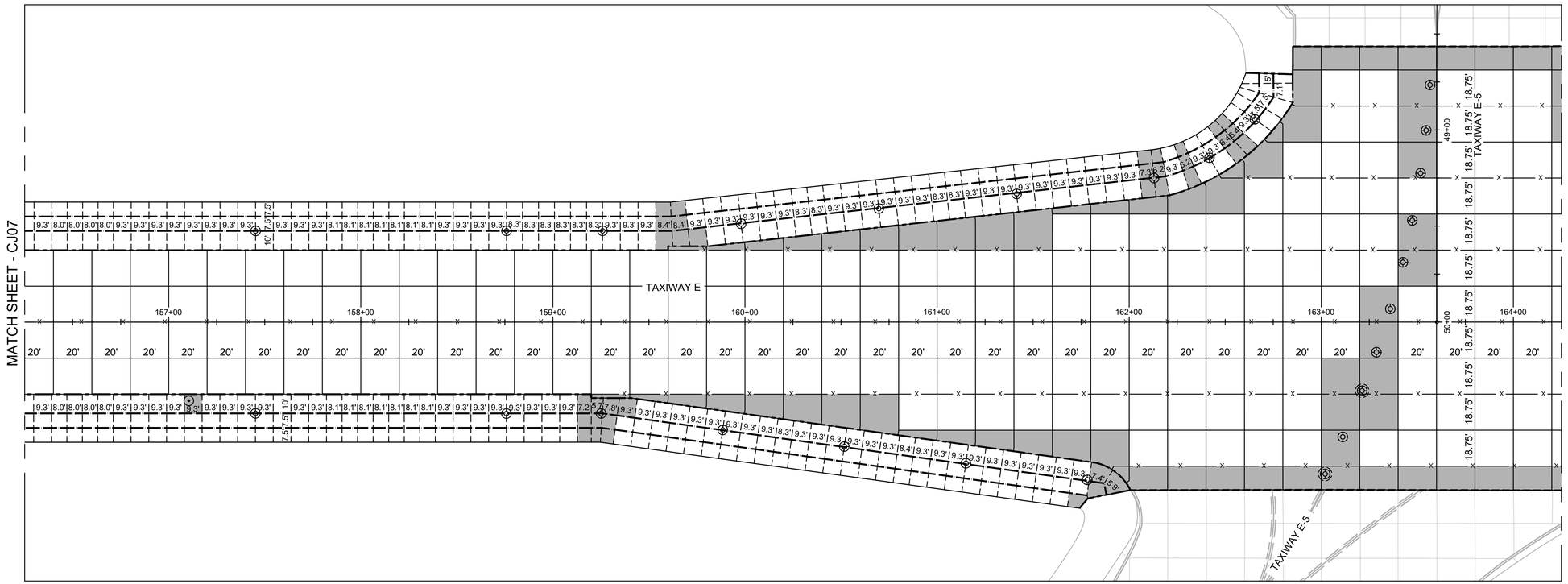
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

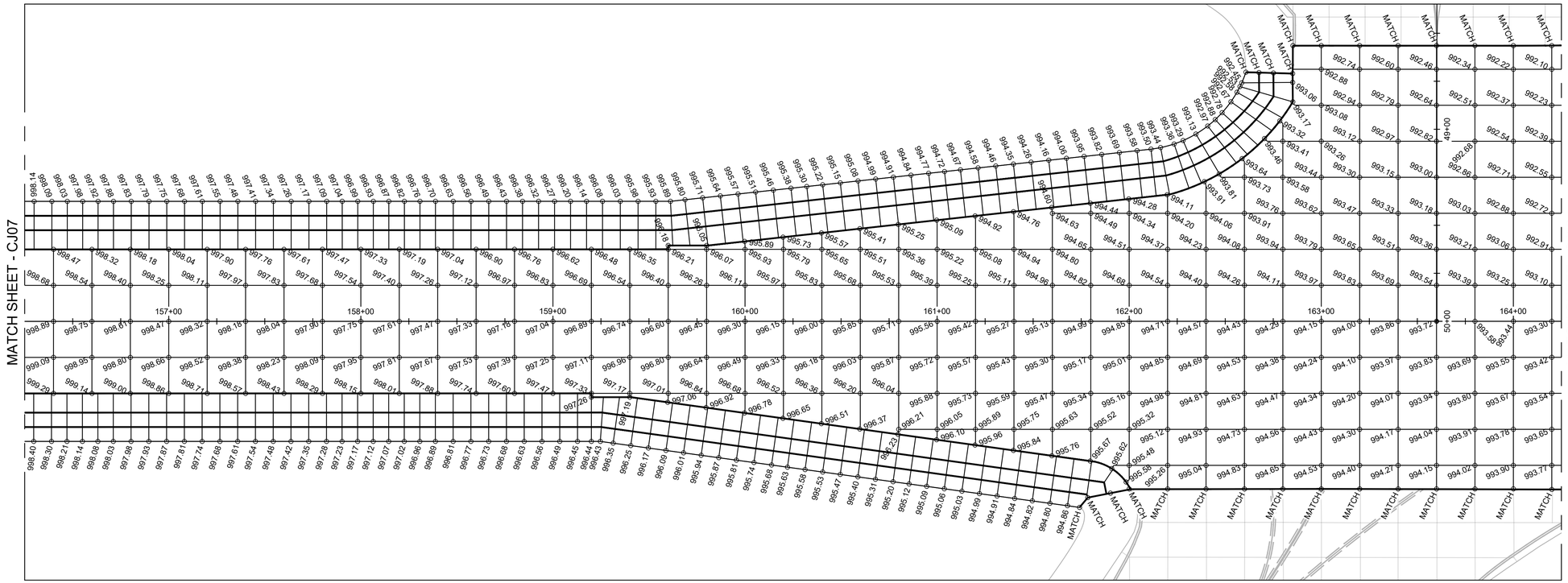
TAXIWAY E
JOINT LAYOUT AND ELEVATION PLAN
STA. 148+18 TO STA. 156+18

Design: MMW	CAD File:62230566CJ01.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CJ07 57 of 104

CAD File: 62230566CJ01.dwg



JOINT LAYOUT



ELEVATION LAYOUT

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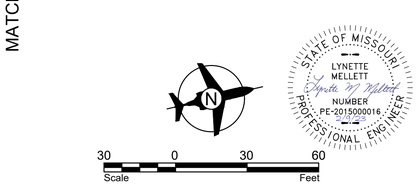
LEGEND:

- ISOLATION JOINT (1 CJ14)
- DOWELED CONSTRUCTION JOINT (2 CJ14)
- DOWELED CONTRACTION JOINT (3 CJ14)
- MODIFIED ISOLATION JOINT (4 CJ14)
- PCC/HMA JOINT (1 CJ15)
- SHOULDER CONSTRUCTION JOINT (2 CJ15)
- SHOULDER CONTRACTION JOINT (3 CJ15)
- PCCP REINFORCEMENT
- ELECTRICAL FIXTURE
- UNDERDRAIN CLEANOUT
- ELECTRICAL FIXTURE BLOCK OUT (4 EL11)
- EXISTING ELECTRICAL MANHOLE





No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
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Kansas City, MO 64105
Licensee No. 001270

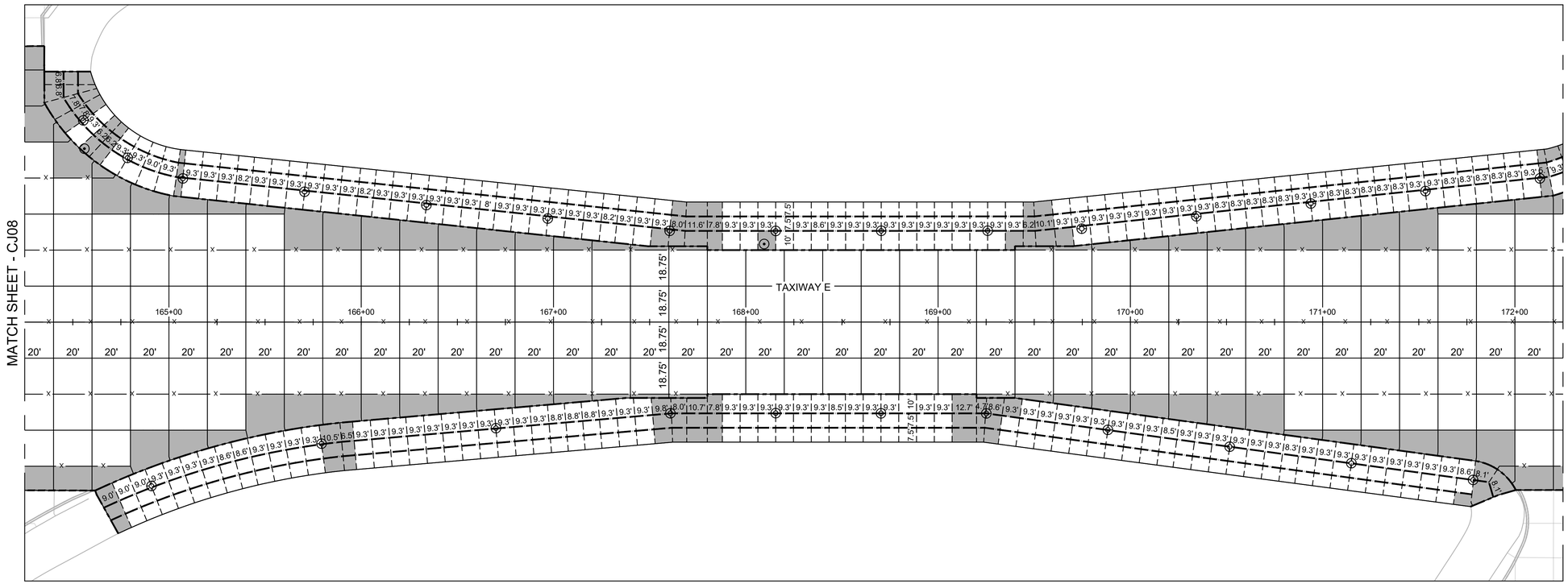
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

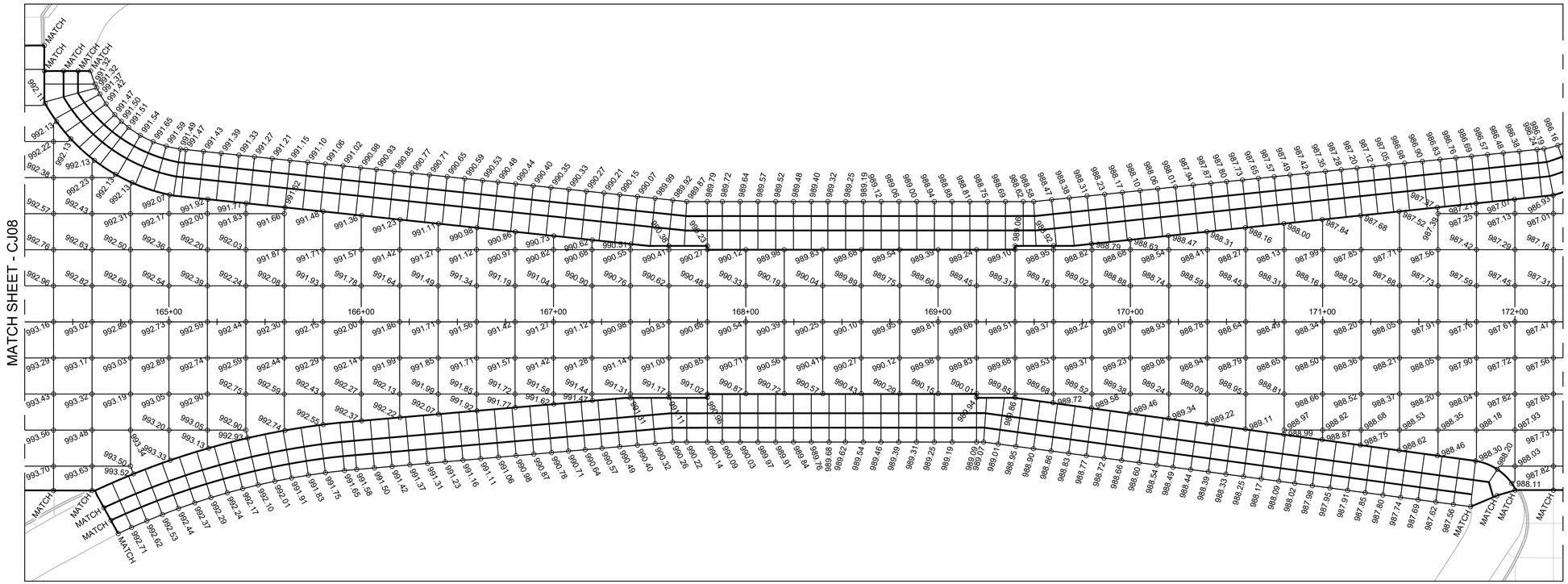
TAXIWAY E
JOINT LAYOUT AND ELEVATION PLAN
STA. 156+18 TO STA. 164+18

Design: MMW	CAD File:62230566CJ01.dwg	Aviation Project No.	62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	CJ08 58 of 104

CAD File: 62230566CJ01.dwg



JOINT LAYOUT



ELEVATION LAYOUT

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LEGEND:

- ISOLATION JOINT (1 CJ14)
- DOWELED CONSTRUCTION JOINT (2 CJ14)
- DOWELED CONTRACTION JOINT (3 CJ14)
- MODIFIED ISOLATION JOINT (4 CJ14)
- PCC/HMA JOINT (1 CJ15)
- SHOULDER CONSTRUCTION JOINT (2 CJ15)
- SHOULDER CONTRACTION JOINT (3 CJ15)
- PCCP REINFORCEMENT
- ELECTRICAL FIXTURE
- UNDERDRAIN CLEANOUT
- ELECTRICAL FIXTURE BLOCK OUT (4 EL11)
- EXISTING ELECTRICAL MANHOLE

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

30 0 30 60
Scale Feet



No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
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KCI

HNTB
715 Kirk Drive
Kansas City, MO 64105
Licensee No. 001270

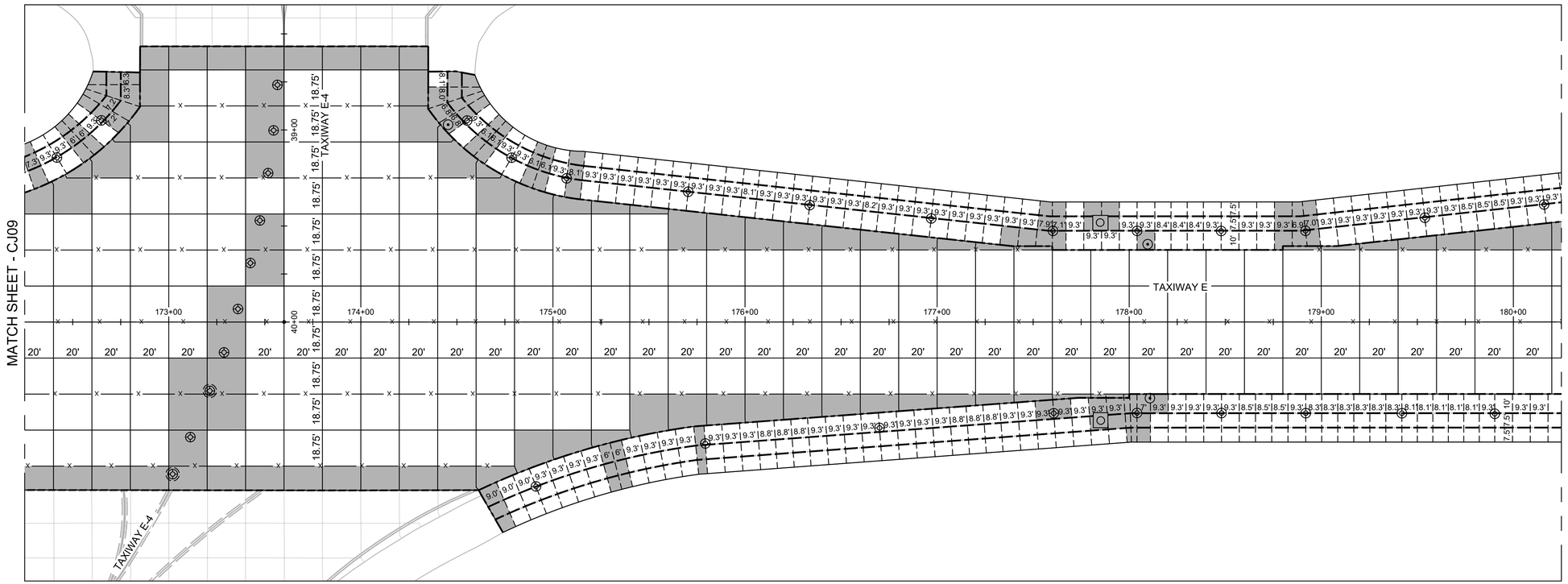
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

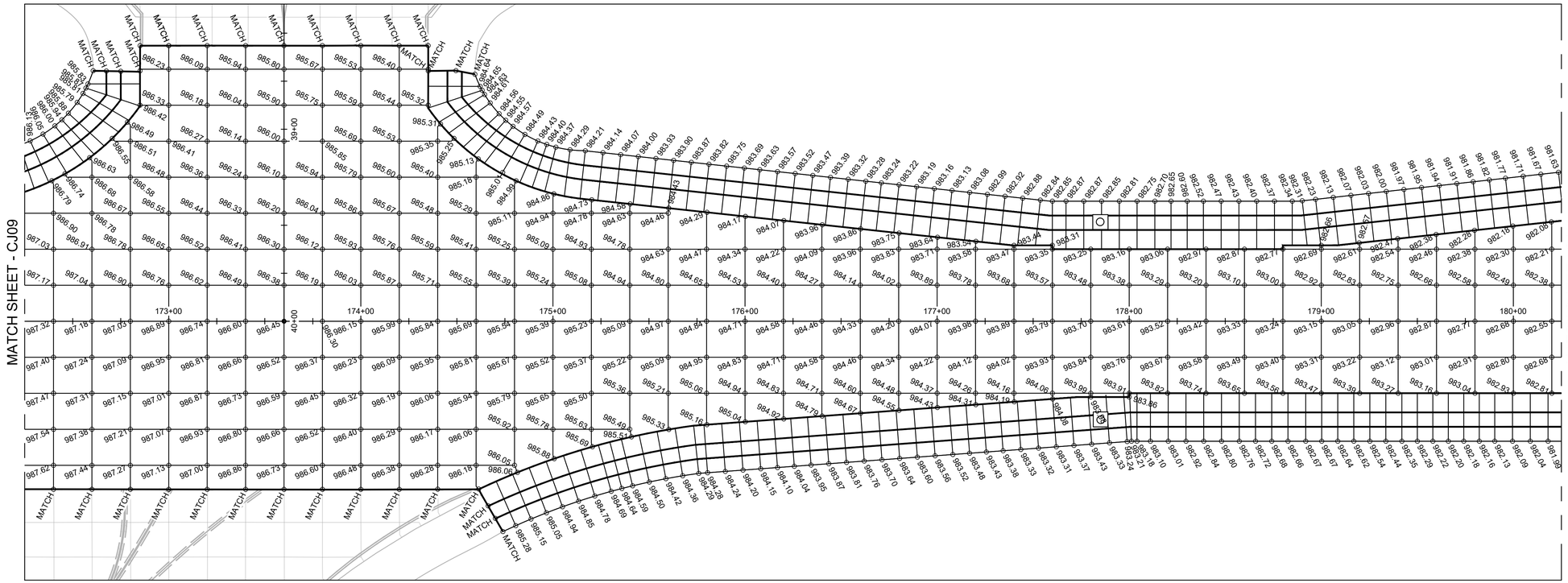
TAXIWAY E
JOINT LAYOUT AND ELEVATION PLAN
STA. 164+18 TO STA. 172+18

Design: MMW	CAD File:62230566CJ01.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CJ09 59 of 104

CAD File: 62230566CJ01.dwg



JOINT LAYOUT



ELEVATION LAYOUT

NOTES:

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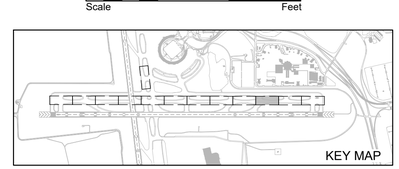
LEGEND:

- ISOLATION JOINT (1 / CJ14)
- DOWELED CONSTRUCTION JOINT (2 / CJ14)
- DOWELED CONTRACTION JOINT (3 / CJ14)
- MODIFIED ISOLATION JOINT (4 / CJ14)
- PCC/HMA JOINT (1 / CJ15)
- SHOULDER CONSTRUCTION JOINT (2 / CJ15)
- SHOULDER CONTRACTION JOINT (3 / CJ15)
- PCCP REINFORCEMENT
- ELECTRICAL FIXTURE
- UNDERDRAIN CLEANOUT
- ELECTRICAL FIXTURE BLOCK OUT (4 / EL11)
- EXISTING ELECTRICAL MANHOLE

30 0 30 60
Scale Feet



STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
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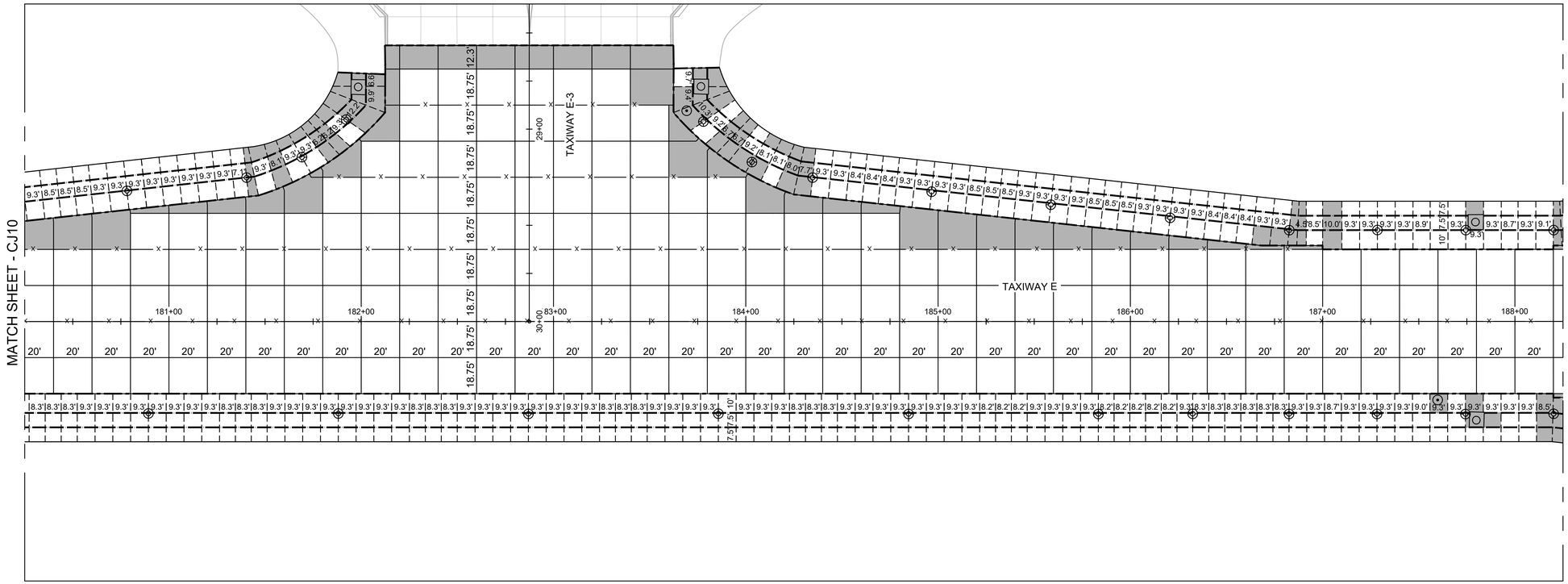
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

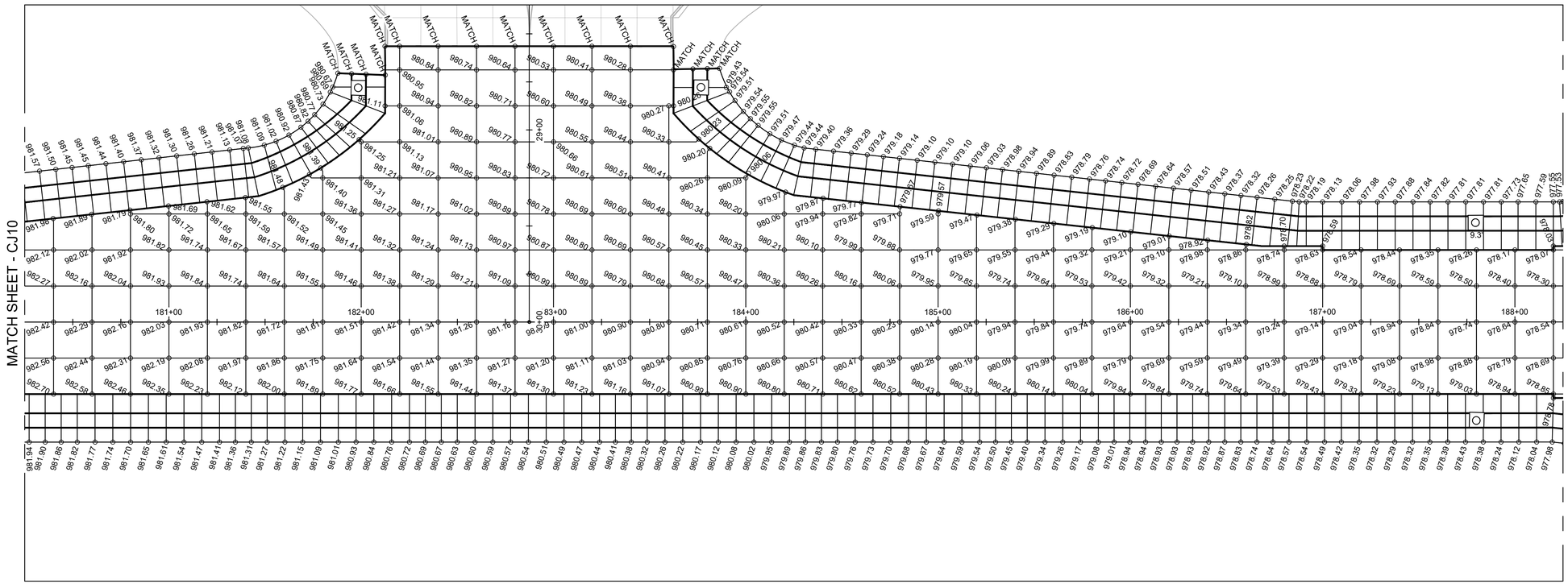
TAXIWAY E
JOINT LAYOUT AND ELEVATION PLAN
STA. 172+18 TO STA. 180+18

Design: MMW	CAD File: 62230566CJ01.dwg	Aviation Project No.	62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	CJ10 60 of 104

CAD File: 62230566CJ01.dwg



JOINT LAYOUT



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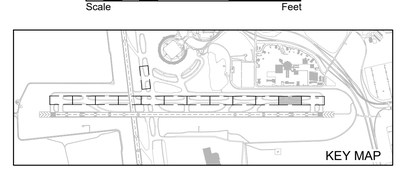
- PCCP REINFORCEMENT
- ELECTRICAL FIXTURE
- UNDERDRAIN CLEANOUT
- ELECTRICAL FIXTURE BLOCK OUT (4 EL11)
- EXISTING ELECTRICAL MANHOLE





30 0 30 60
Scale Feet



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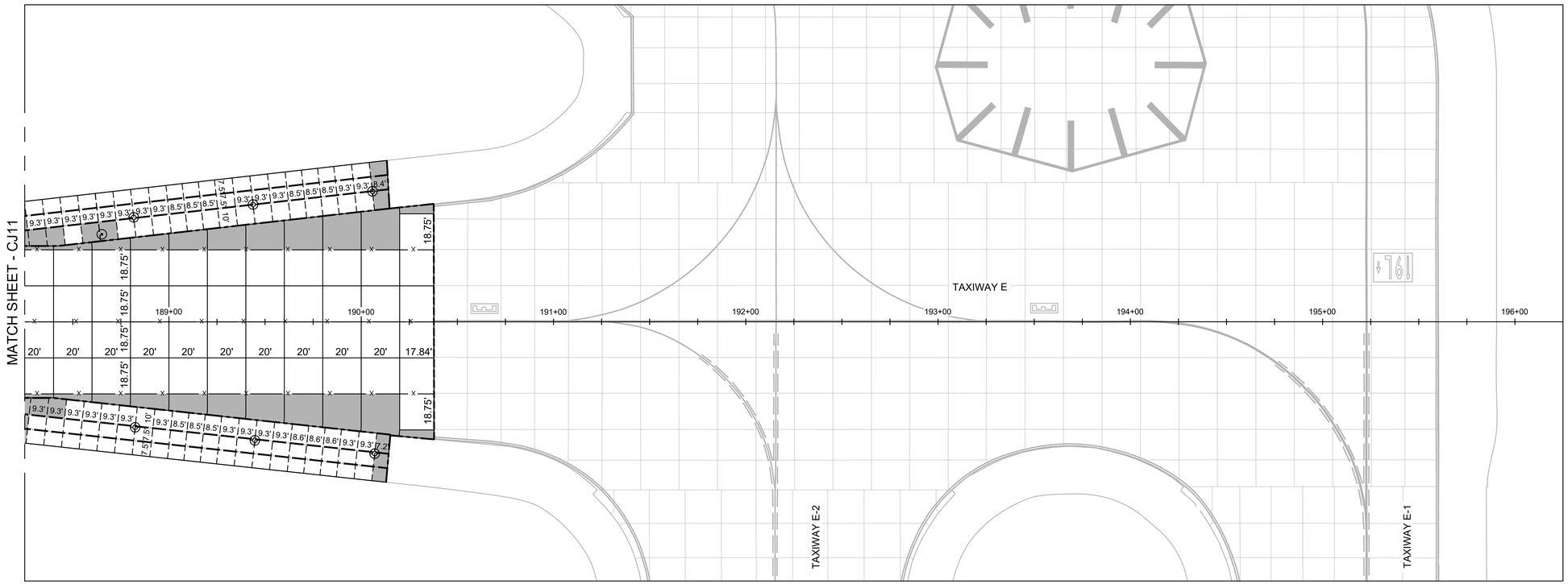
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

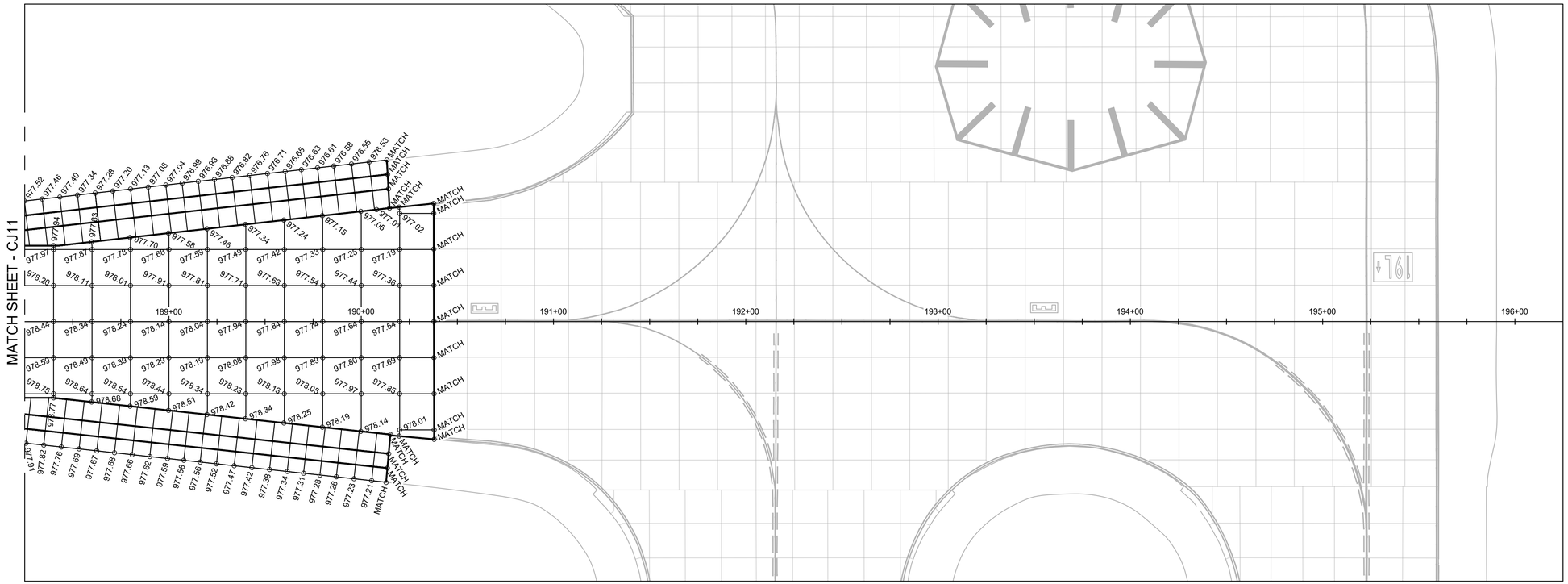
TAXIWAY E
JOINT LAYOUT AND ELEVATION PLAN
STA. 180+18 TO STA. 188+18

Design: MMW	CAD File:62230566CJ01.dwg	Aviation Project No.	62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	CJ11 61 of 104

CAD File: 62230566CJ01.dwg



JOINT LAYOUT



ELEVATION LAYOUT

NOTES:

1. IT IS THE INTENT OF THESE PLANS TO PROVIDE GUIDANCE FOR WHICH JOINTS ARE TO RECEIVE DOWELS AND NOT TO DICTATE THE CONTRACTOR'S MEANS AND METHODS FOR PAVING INSTALLATION. CONSTRUCTION AND CONTRACTION JOINTS MAY BE INTERCHANGEABLE SUBJECT TO ENGINEER'S APPROVAL OF A REVISED PAVING PLAN SUBMITTED BY THE CONTRACTOR.
2. REINFORCING STEEL IS REQUIRED FOR ALL PANELS THAT EXCEED A 1.25 TO 1 LENGTH TO WIDTH RATIO OR HAVE A NON-RECTANGULAR SHAPE.
3. FIXTURES INDICATED ON THE PLANS AS REQUIRING AN ELECTRICAL BLOCK OUT SHALL REFERENCE THE ELECTRICAL PLAN DETAILS FOR CORE DRILLED IN-PAVEMENT LIGHT INSTALLATION. FIXTURES 134 (E-6), 135 (E-5), 137 (E-5), 135 (E-4), AND 137 (E-4) SHALL REQUIRE AN ELECTRICAL BLOCK OUT. COSTS SHALL BE INCIDENTAL TO L-125, INSTALLATION OF AIRPORT LIGHTING SYSTEMS. FIXTURES AS SHOWN ON THESE PLANS HAVE BEEN ADJUSTED TO AVOID PROPOSED PAVEMENT JOINTS, WHERE FEASIBLE.

LEGEND:

- ISOLATION JOINT (1 / CJ14)
- DOWELED CONSTRUCTION JOINT (2 / CJ14)
- DOWELED CONTRACTION JOINT (3 / CJ14)
- MODIFIED ISOLATION JOINT (4 / CJ14)
- PCC/HMA JOINT (1 / CJ15)
- SHOULDER CONSTRUCTION JOINT (2 / CJ15)
- SHOULDER CONTRACTION JOINT (3 / CJ15)
- PCCP REINFORCEMENT
- ELECTRICAL FIXTURE
- UNDERDRAIN CLEANOUT
- ELECTRICAL FIXTURE BLOCK OUT (4 / EL11)
- EXISTING ELECTRICAL MANHOLE

30 0 30 60
Scale Feet

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER



No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT
KCI

HNTB
715 Kirk Drive
Kansas City, MO 64105
Licensee No. 001270

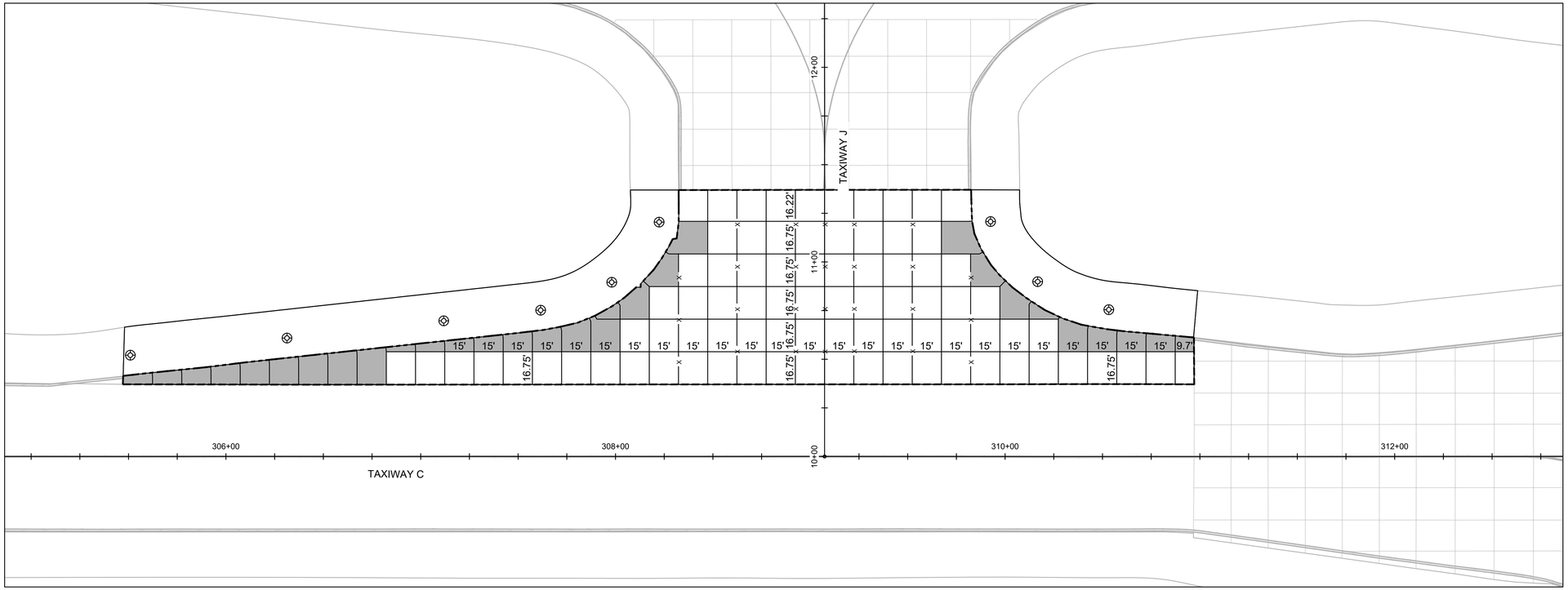
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J
REHABILITATION

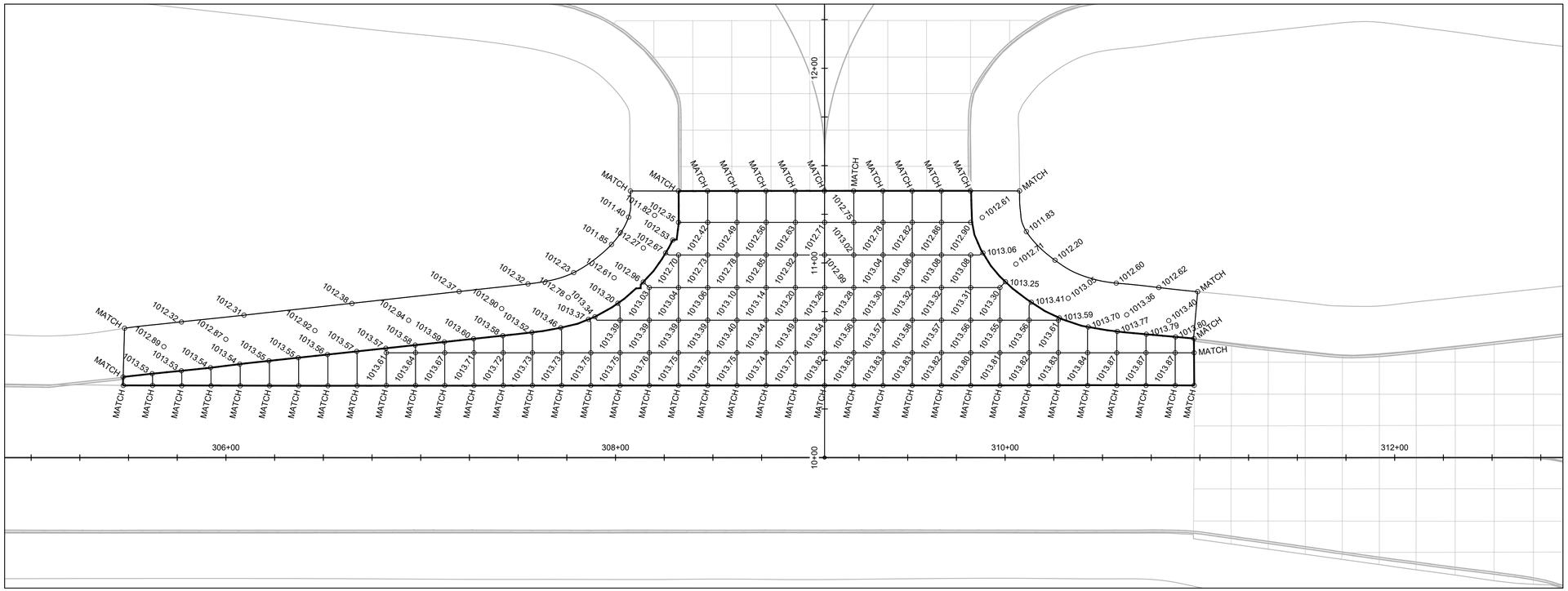
TAXIWAY E
JOINT LAYOUT AND ELEVATION PLAN
STA. 188+18 TO STA. 190+38

Design: MMW	CAD File:62230566CJ01.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CJ12 62 of 104

CAD File: 62230566CJ01.dwg



JOINT LAYOUT



ELEVATION LAYOUT

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- DOWELED CONTRACTION JOINT (3 / CJ14)
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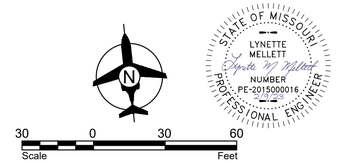
- SHOULDER CONTRACTION JOINT (3 / CJ15)
- PCCP REINFORCEMENT
- ELECTRICAL FIXTURE
- UNDERDRAIN CLEANOUT
- ELECTRICAL FIXTURE BLOCK OUT (4 / EL11)
- EXISTING ELECTRICAL MANHOLE



STATE OF MISSOURI
LYNETTE MELLETT
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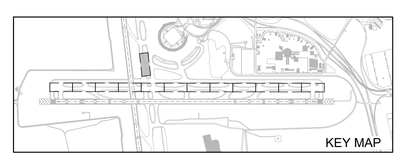
PROFESSIONAL ENGINEER



No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT
KCI

HNTB
715 Kirk Drive
Kansas City, MO 64105
Licensee No. 001270

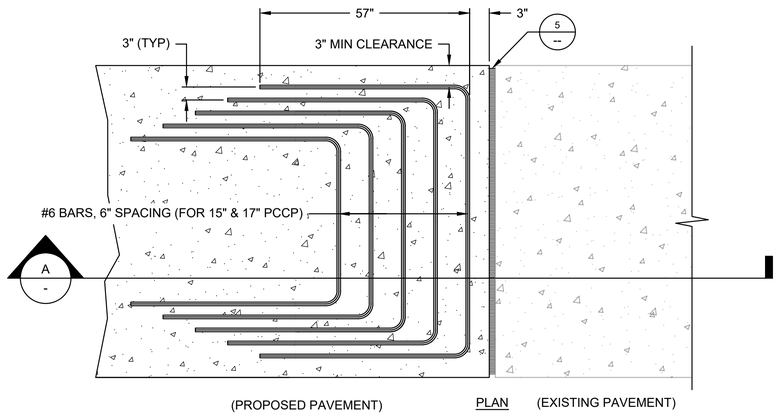
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

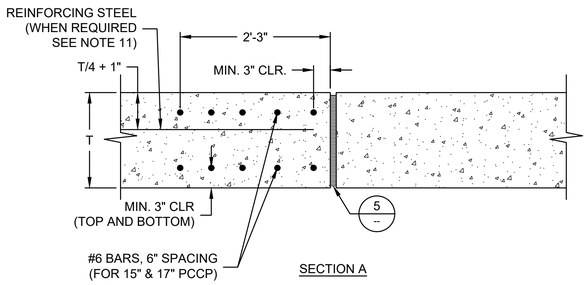
TAXIWAY E AND TAXIWAY J REHABILITATION

TAXIWAY J
JOINT LAYOUT AND ELEVATION PLAN

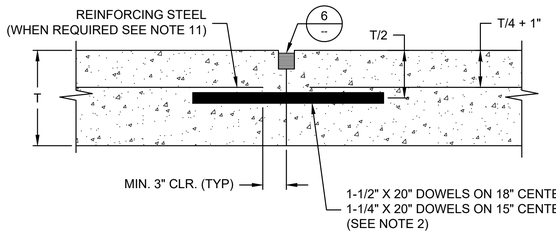
Design: MMW	CAD File:62230566CJ01.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CJ13 63 of 104

CAD File: 62230566CJ01.dwg

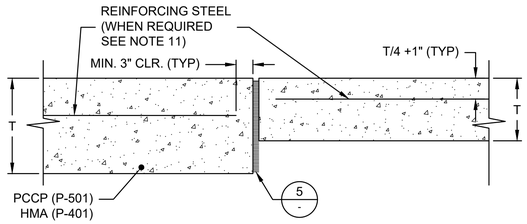




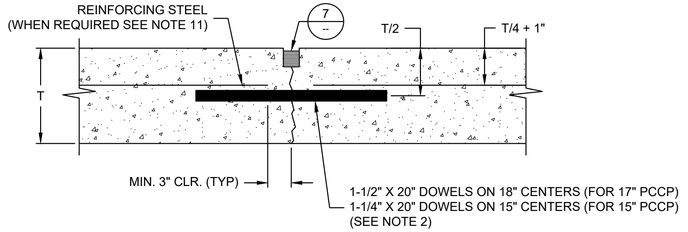
1 TYPE A-1 - REINFORCED ISOLATION JOINT
NOT TO SCALE



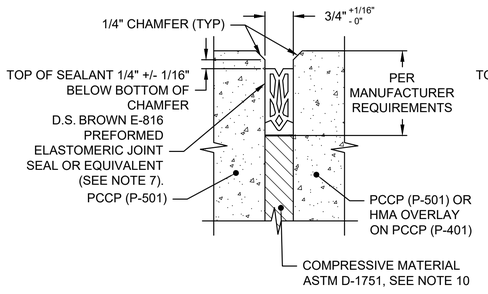
2 TYPE E - DOWELED CONSTRUCTION JOINT
NOT TO SCALE



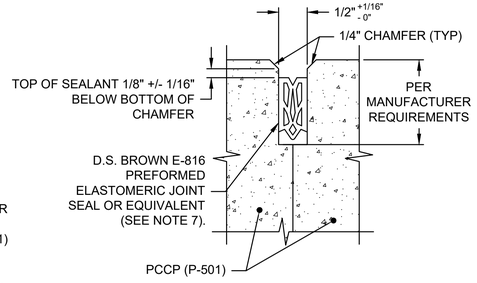
4 MODIFIED ISOLATION JOINT
NOT TO SCALE



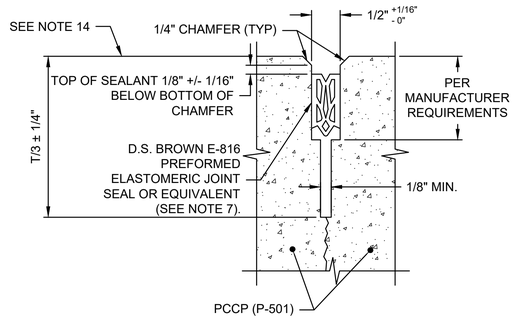
3 TYPE C - DOWELED CONTRACTION JOINT
NOT TO SCALE



5 ISOLATION JOINT
NOT TO SCALE



6 CONSTRUCTION JOINT
NOT TO SCALE



7 CONTRACTION JOINT
NOT TO SCALE

JOINT DETAIL NOTES:

1. CONTRACTOR SHALL USE DOWELED CONSTRUCTION JOINTS WHERE PAVING OPERATIONS ARE DELAYED OR STOPPED.
2. CONTRACTOR SHALL PROPERLY POSITION DOWELS BY USE OF AN APPROVED SUPPORT ASSEMBLY. THE DOWELS SHALL BE ADEQUATELY SECURED SO AS TO PREVENT THEIR MOVEMENT BY PAVING EQUIPMENT.
3. CONTRACTOR SHALL PAINT AND LUBRICATE DOWELS ACCORDING TO THE SPECIFICATIONS. DOWELS SHALL BE LUBRICATED A MINIMUM OF 1/2 LENGTH OF DOWEL.
4. CONTRACTOR SHALL INSERT DOWELS IN CONSTRUCTION JOINTS BY DRILLING AND GROUTING IN A METHOD APPROVED BY THE ENGINEER. CONTRACTOR SHALL NOT "STAB" DOWELS INTO PLASTIC CONCRETE.
5. CONTRACTOR SHALL NOT TIE REINFORCING STEEL TO DOWELS.
6. CONTRACTOR SHALL SAW EDGES OF EXISTING AND NEW PAVEMENT STRAIGHT, VERTICAL AND SMOOTH, WHEN REQUIRED BY THE ENGINEER.
7. JOINT THICKNESS AND FINISHING SHALL BE IN ACCORDANCE WITH SPECIFICATION P-604, COMPRESSIVE JOINT SEALS FOR CONCRETE, P-605, JOIN SEALANTS FOR CONCRETE PAVEMENTS, AND THE JOINT SEALANT MANUFACTURER'S SPECIFICATIONS.
8. CONSTRUCTION AND CONTRACTION JOINTS MAY BE INTERCHANGED BUT ONLY UPON ENGINEER'S APPROVAL OF A REVISED PAVING PLAN SUBMITTED BY THE CONTRACTOR.
9. CONTRACTOR SHALL THOROUGHLY CLEAN JOINTS IN ACCORDANCE WITH SPECIFICATION P-604, COMPRESSIVE JOINT SEALS FOR CONCRETE OR P-605, JOINT SEALANTS FOR CONCRETE PAVEMENTS.
10. WHERE ISOLATION JOINTS ARE SPECIFIED, COMPRESSIVE MATERIAL SHALL BE INSTALLED AND CONFORM TO THE REQUIREMENTS OF P-501, CEMENT CONCRETE PAVEMENTS.
11. REINFORCEMENT SHALL BE D6 X D6 WELDED WIRE FABRIC WITH 6" CENTER TO CENTER SPACING FOR 17" PCCP, D5 X D5 WELDED WIRE FABRIC WITH 6" CENTER TO CENTER SPACING FOR 15" PCCP, AND D4 X D4 WELDED WIRE FABRIC WITH 12" CENTER TO CENTER SPACING FOR 6" PCCP.
12. WHERE REINFORCING OVERLAPS DOWELS, REINFORCING SHALL NOT BE IN CONTACT WITH THE DOWELS. CONTRACTOR MAY TRIM OUT PART OF THE TRANSVERSE WIRES TO PREVENT CONTACT BETWEEN DOWEL REINFORCING. REINFORCING SHALL BE 3" CLEAR FROM THE JOINT.
13. WHERE ISOLATION JOINTS ARE SPECIFIED, CONTRACTOR SHALL UTILIZE A-1 (REINFORCED).
14. INITIAL SAW CUT T/6 TO T/5 (MINIMUM 1") WHEN USING AN EARLY ENTRY SAW.

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

No.	Revision	Date

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KCI

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715 Kirk Drive
Kansas City, MO 64105
Licensee No. 001270

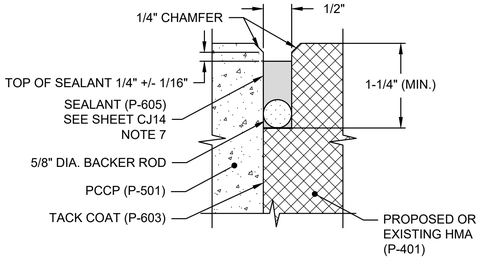
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

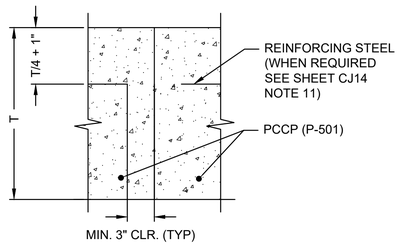
JOINT DETAILS

Design: MMW	CAD File:62230566CJ14.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CJ14 64 of 104

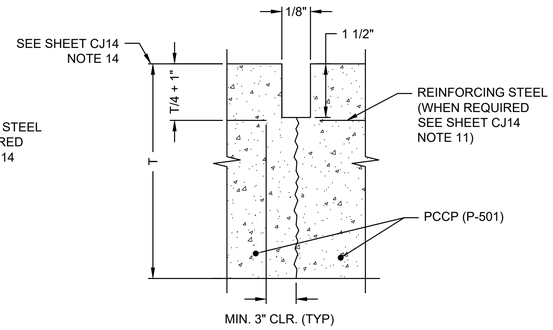
CAD File: 62230566CJ14.dwg



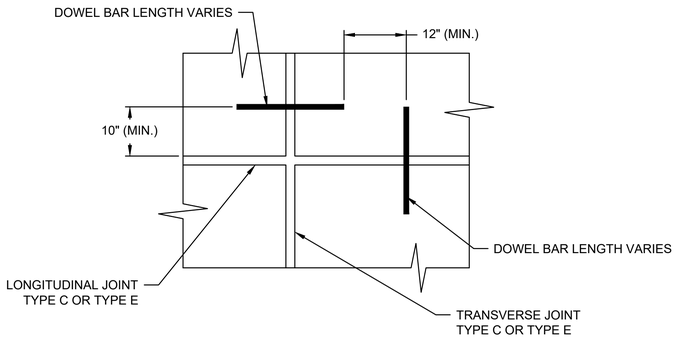
1 PCC/HMA JOINT
NOT TO SCALE



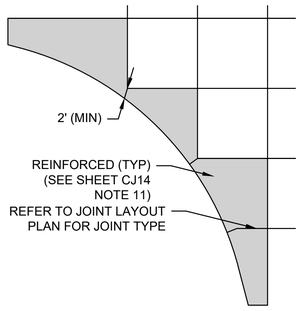
2 SHOULDER CONSTRUCTION JOINT
NOT TO SCALE



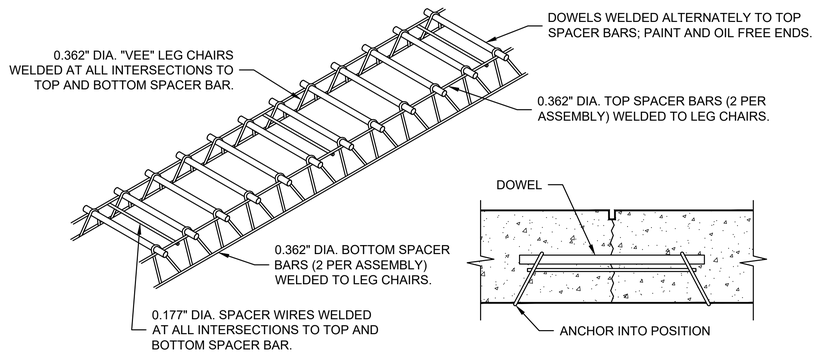
3 SHOULDER CONTRACTION JOINT
NOT TO SCALE



4 DOWEL BAR SPACING AT EDGE OF JOINT
NOT TO SCALE



5 TYPICAL FILLET DETAIL
NOT TO SCALE



6 DOWEL BAR ASSEMBLY
NOT TO SCALE

JOINT DETAIL NOTES:

1. SEE JOINT DETAIL NOTES ON CJ14.

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

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CITY OF KANSAS CITY, MISSOURI
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KCI

HNTB
715 Kirk Drive
Kansas City, MO 64105
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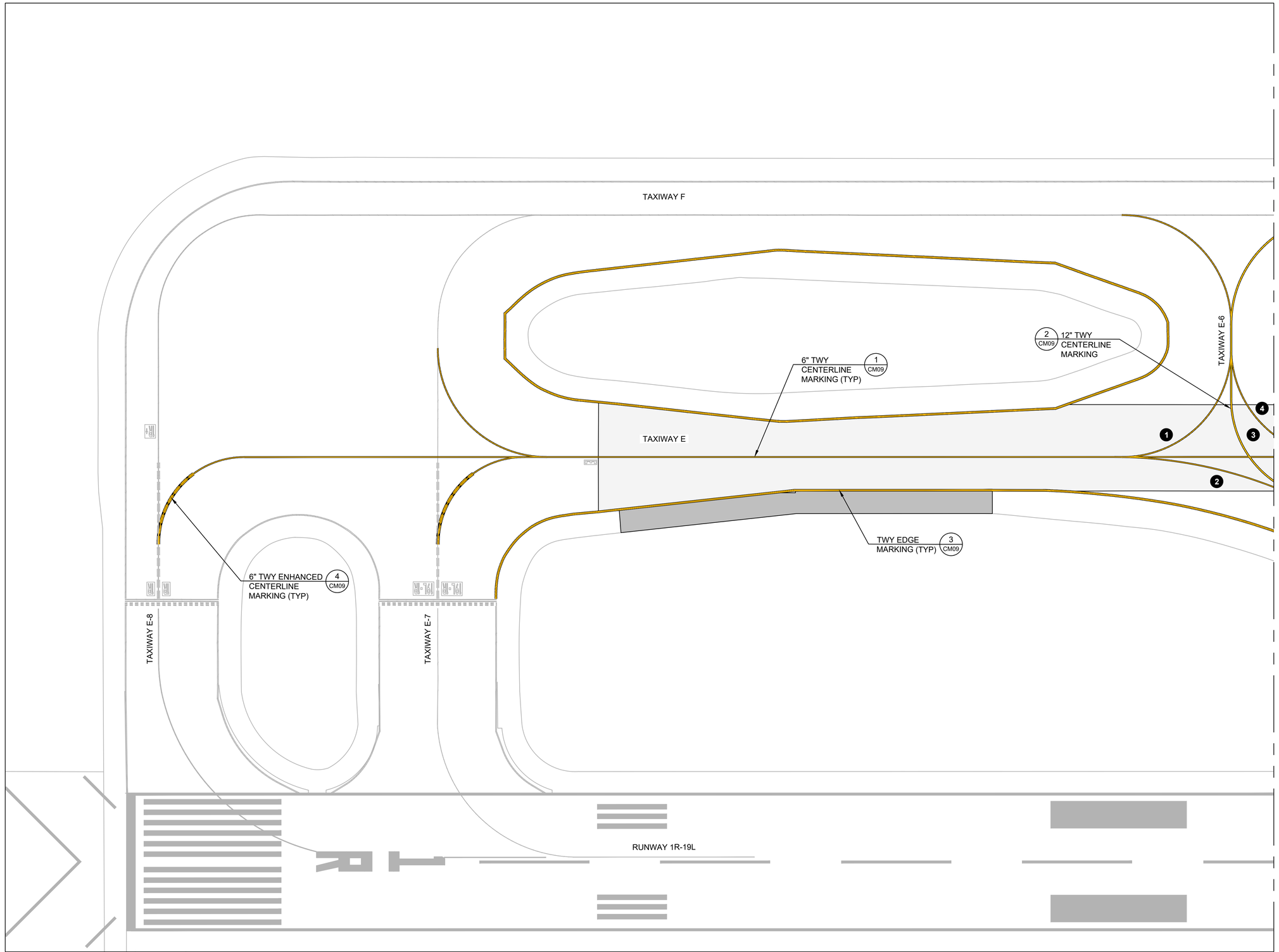
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J
REHABILITATION

JOINT DETAILS

Design: MMW	CAD File:62230566CJ14.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CJ15 65 of 104

CAD File: 62230566CJ14.dwg



NOTES:

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2. THE CONTRACTOR SHALL NOT DAMAGE EXISTING MARKINGS TO REMAIN. ANY DAMAGE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE RPR.
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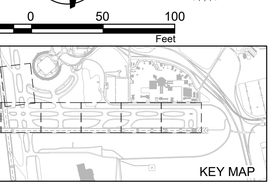
5. PAVEMENT MARKING OUTSIDE OF THE BARRICADE LIMITS FOR EACH WORK AREA SHALL NOT BE REMOVED UNTIL TEMPORARY MARKINGS ARE TO BE INSTALLED AT THE END OF EACH PHASE. THE CONTRACTOR SHALL COORDINATE WITH AIRPORT OPERATIONS FOR THE CLOSURE OF ADJACENT TAXIWAY TO COMPLETE REQUIRED PAVEMENT MARKING WORK.

LEGEND

- PROPOSED MARKING
- EXISTING MARKING
- PROPOSED PAVEMENT
- 1 CURVE NUMBER

#	RADIUS	CC STA.	CC OFFSET	LEN.	PC STA.	PC OFFSET	PT STA.	PT OFFSET
1	120'	111+60.89 TWY E	120.00' LT	188.50'	111+60.89 TWY E	0.00'	58+80.00 TWY E-6	0.00'
2	480'	111+52.28 TWY E	480.00' RT	251.33'	111+52.28 TWY E	0.00'	61+28.62 TWY E-6	0.00'
3	110'	113+90.89 TWY E	63.51' LT	115.19'	113+35.89 TWY E	31.75' RT	59+36.49 TWY E-6	0.00'
4	120'	114+00.89 TWY E	120.00' LT	188.50'	114+00.89 TWY E	0.00'	58+80.00 TWY E-6	0.00'





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Licensee No. 001270

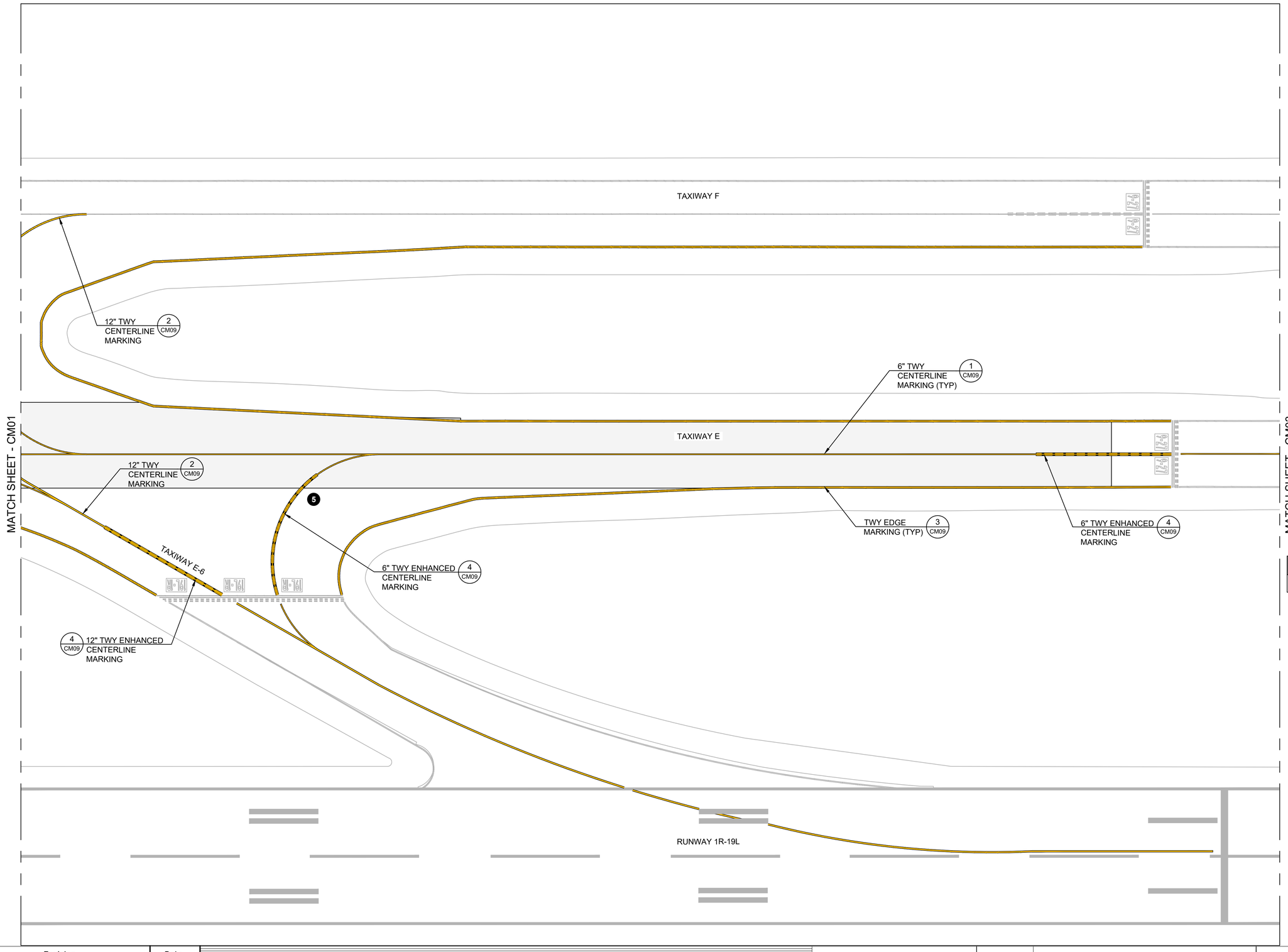
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

MARKING PLAN

Design: MMW	CAD File:62230566CM01.dwg	Aviation Project No. 62230566	
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CM01	66 of 104

CAD File: 62230566CM01.dwg



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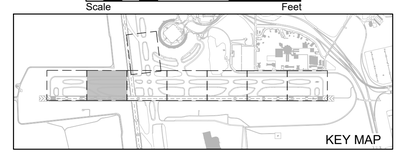
- PROPOSED MARKING
- EXISTING MARKING
- PROPOSED PAVEMENT
- 1 CURVE NUMBER

#	RADIUS	CC STA.	CC OFFSET	LEN.	PC STA.	PC OFFSET	PT STA.	PT OFFSET
5	120'	117+27.61 TWY E	119.97' RT	222.81'	117+25.01 TWY E	0.00'	63+65.98 TWY E-6	30.80' LT

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

N

50 0 50 100
Scale Feet


KEY MAP

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT
KCI

HNTB
715 Kirk Drive
Kansas City, MO 64105
Licensee No. 001270

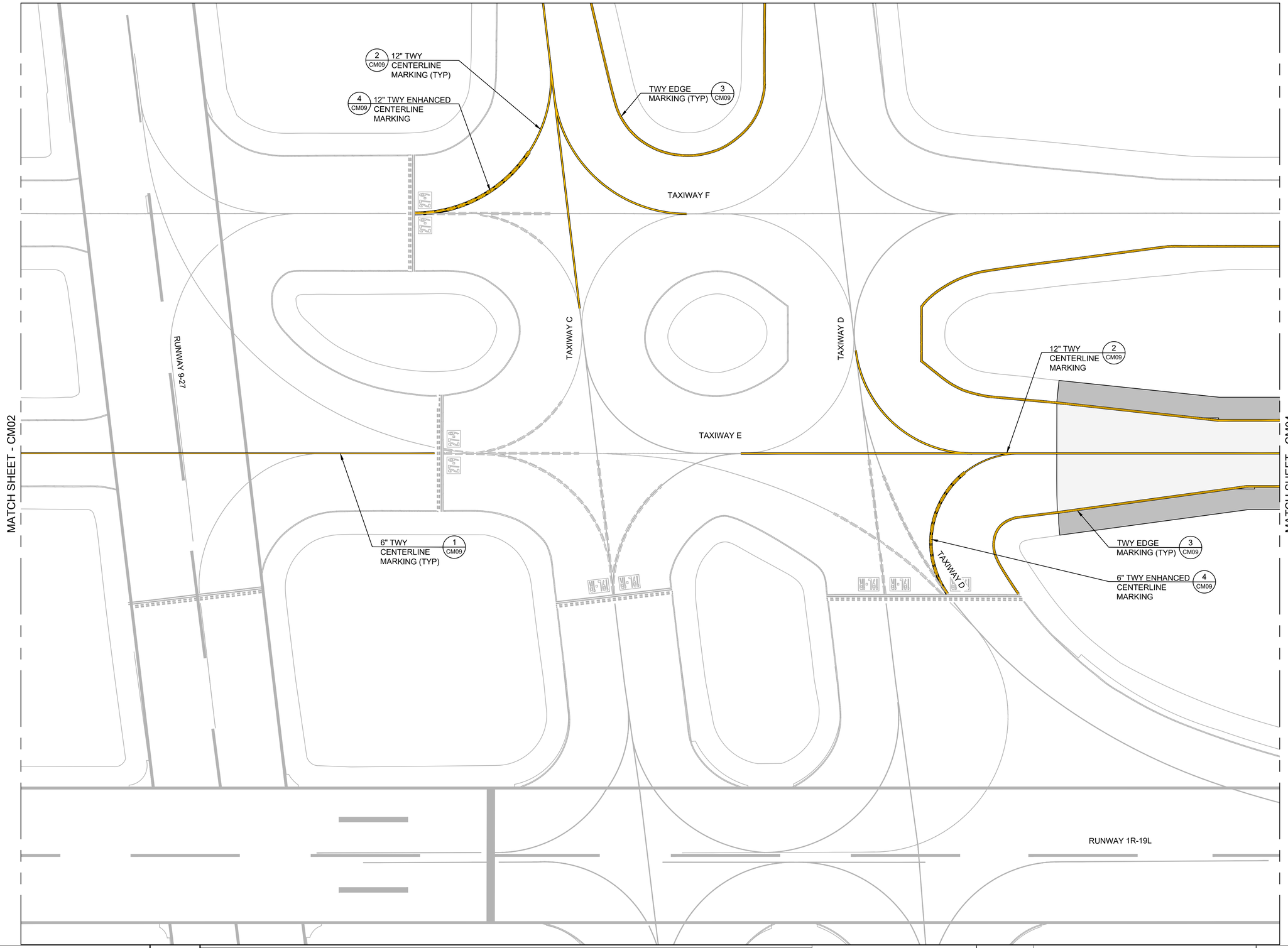
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

MARKING PLAN

Design: MMW	CAD File:62230566CM01.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CM02 67 of 104

CAD File: 62230566CM01.dwg



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LEGEND

- PROPOSED MARKING
- EXISTING MARKING
- PROPOSED PAVEMENT
- 1 CURVE NUMBER

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

50 0 50 100
Scale Feet

KEY MAP

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT
KCI

HNTB
715 Kirk Drive
Kansas City, MO 64105
Licensee No. 001270

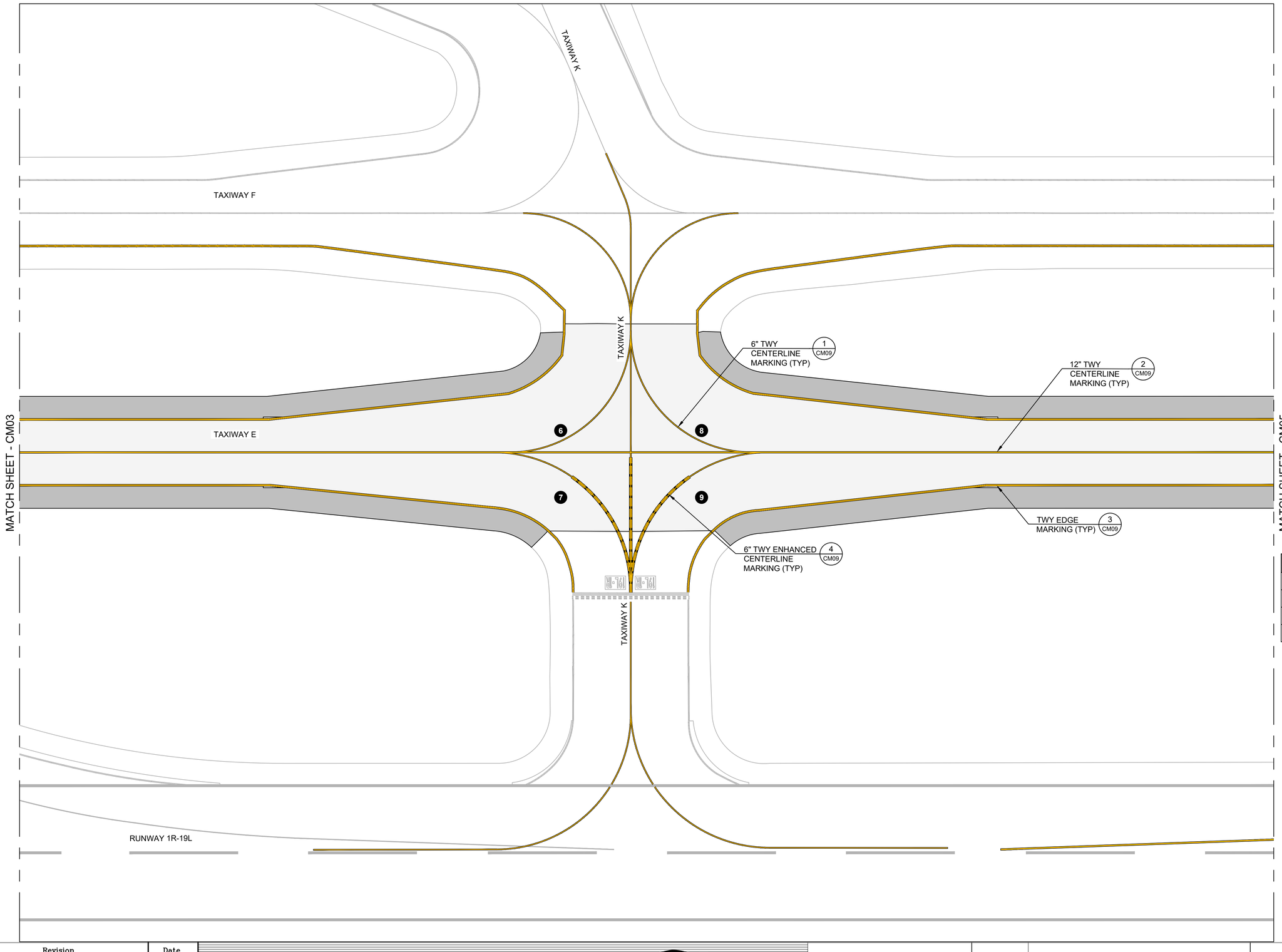
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

MARKING PLAN

Design: MMW	CAD File:62230566CM01.dwg	Aviation Project No.	62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	CM03 68 of 104

CAD File: 62230566CM01.dwg



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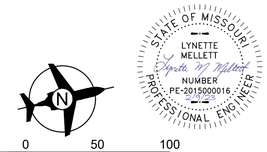
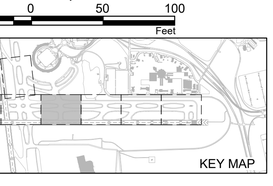
- PROPOSED MARKING
- EXISTING MARKING
- PROPOSED PAVEMENT
- 1 CURVE NUMBER

#	RADIUS	CC STA.	CC OFFSET	LEN.	PC STA.	PC OFFSET	PT STA.	PT OFFSET
6	135'	146+75.21 TWY E	135.00' LT	212.06'	146+75.21 TWY E	0.00'	53+65.00 TWY K	0.00'
7	153'	146+57.21 TWY E	153.00' RT	240.33'	146+57.21 TWY E	0.00'	56+53.00 TWY K	0.00'
8	135'	149+45.21 TWY E	135.00' LT	212.06'	149+45.21 TWY E	0.00'	53+65.00 TWY K	0.00'
9	153'	149+63.21 TWY E	153.00' RT	240.33'	149+63.21 TWY E	0.00'	56+53.00 TWY K	0.00'





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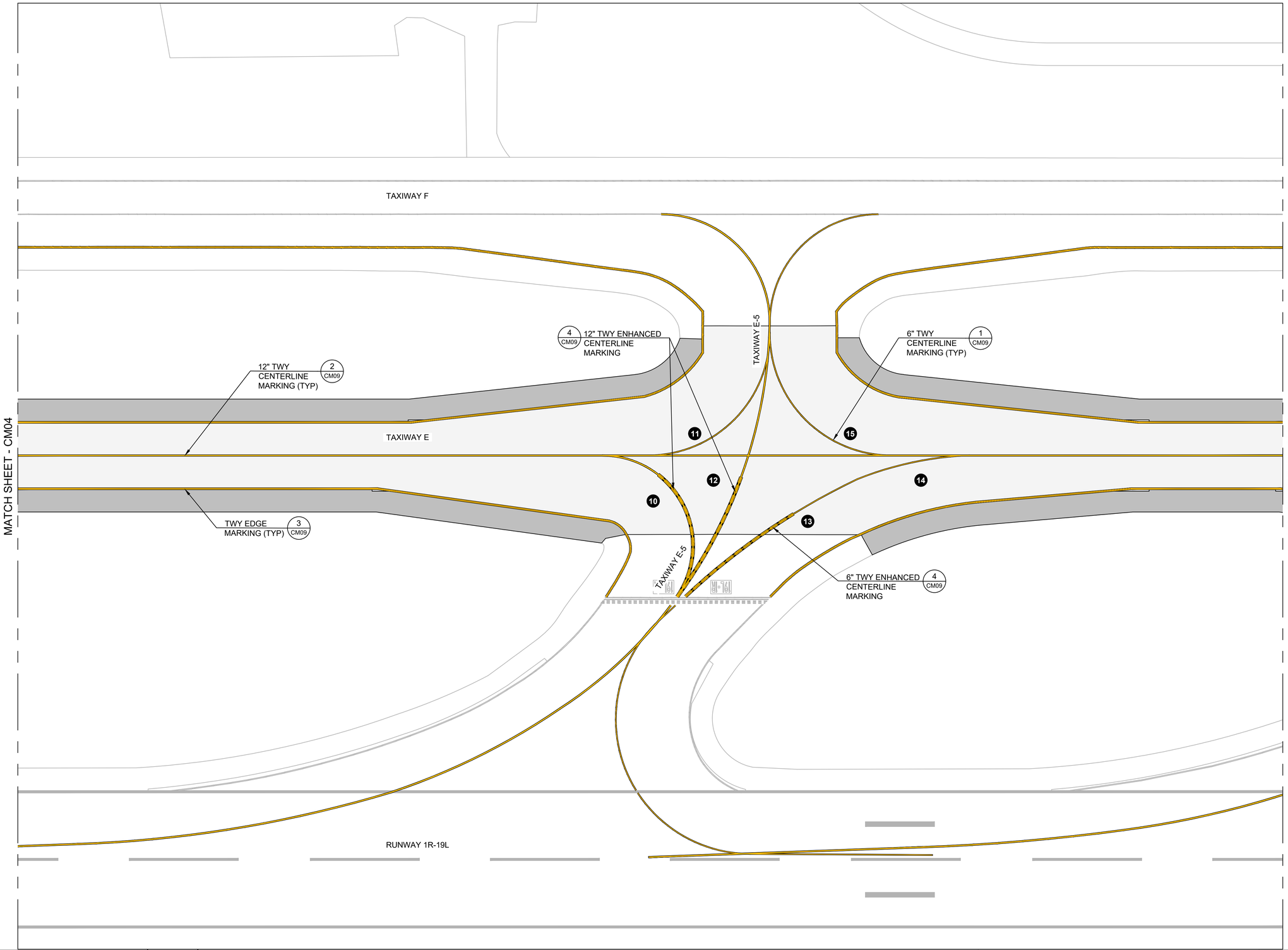
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

MARKING PLAN

Design: MMW	CAD File:62230566CM01.dwg	Aviation Project No.	62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	CM04 69 of 104

CAD File: 62230566CM01.dwg



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- EXISTING MARKING
- PROPOSED PAVEMENT
- 1 CURVE NUMBER

#	RADIUS	CC STA.	CC OFFSET	LEN.	PC STA.	PC OFFSET	PT STA.	PT OFFSET
10	100'	161+75.22 TWY E	100.00' RT	215.67'	161+75.22 TWY E	0.00'	162+58.54 TWY E	155.30' RT
11	135'	162+25.20 TWY E	135.00' LT	214.37'	162+25.20 TWY E	0.00'	48+62.69 TWY E-5	0.00'
12	530'	158+30.20 TWY E	156.83' LT	335.03'	162+57.79 TWY E	156.33' RT	48+43.17 TWY E-5	0.00'
13	745'	167+77.32 TWY E	698.81' RT	231.09'	162+67.02 TWY E	156.03' RT	164+57.04 TWY E	26.17' RT
14	373'	165+95.64 TWY E	372.46' RT	127.96'	164+57.04 TWY E	26.17' RT	165+75.66 TWY E	0.00'
15	135'	164+95.20 TWY E	135.00' LT	212.06'	164+95.20 TWY E	0.00'	48+65.00 TWY E-5	0.00'

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

N

50 0 50 100
Scale Feet

KEY MAP

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AVIATION DEPARTMENT
KCI

HNTB
715 Kirk Drive
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Licensee No. 001270

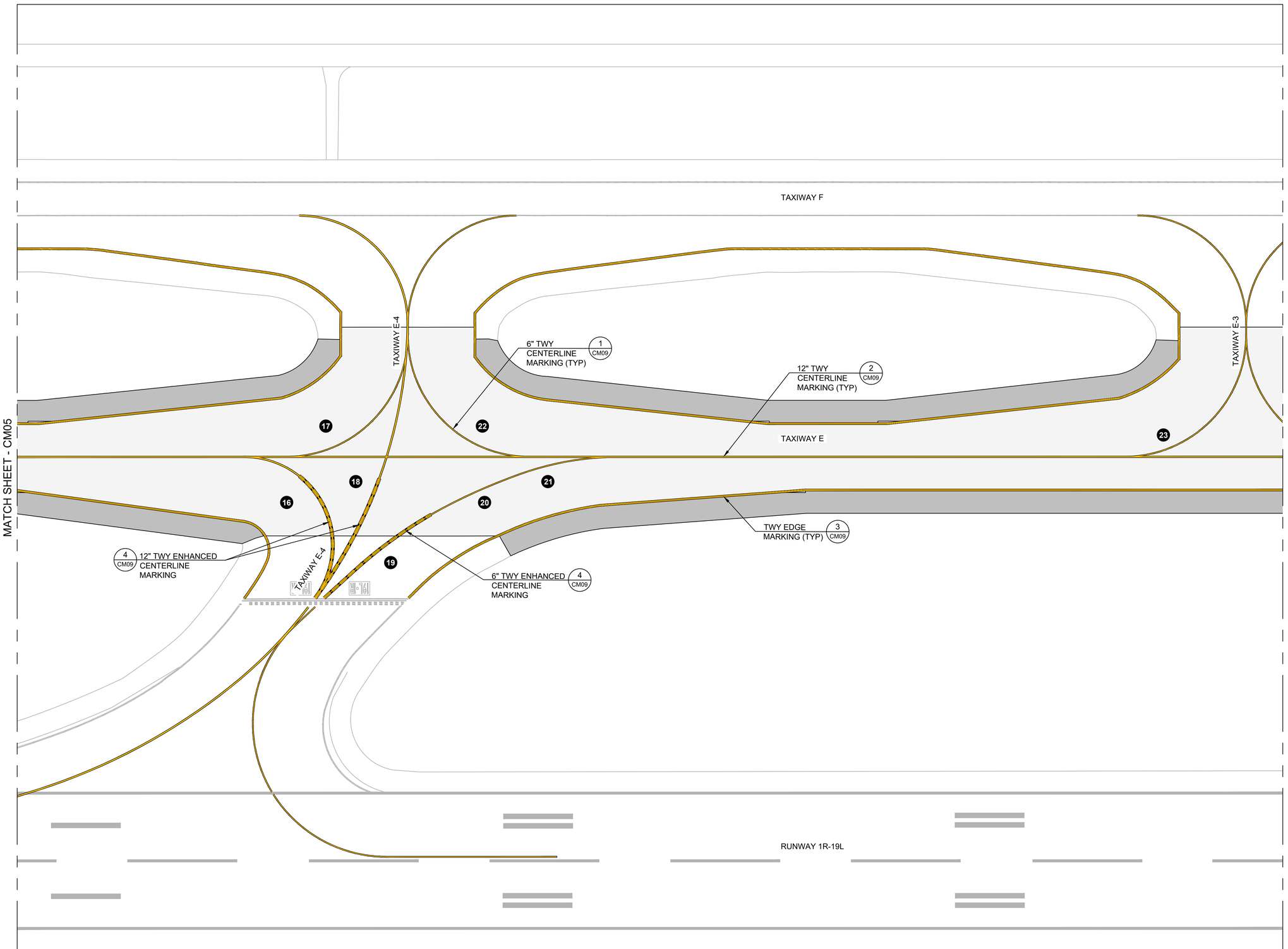
CITY OF FOUNTAINS. HEART OF THE NATION. KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

MARKING PLAN

Design: MMW	CAD File:62230566CM01.dwg	Aviation Project No.	62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	CM05 70 of 104

CAD File: 62230566CM01.dwg



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- EXISTING MARKING
- PROPOSED PAVEMENT
- 1 CURVE NUMBER

#	RADIUS	CC STA.	CC. OFFSET	LEN.	PC STA.	PC. OFFSET	PT STA.	PT. OFFSET
16	98'	171+79.11 TWY E	98.00' RT	209.33'	171+79.11 TWY E	0.00'	172+61.87 TWY E	150.49' RT
17	135'	172+25.05 TWY E	135.00' LT	212.06'	172+25.05 TWY E	0.00'	38+65.00 TWY E-4	0.00'
18	525'	168+35.05 TWY E	155.20' LT	333.42'	172+57.68 TWY E	156.25' RT	38+44.80 TWY E-4	0.00'
19	500'	176+37.03 TWY E	496.07' RT	99.80'	173+00.53 TWY E	126.26' RT	173+85.87 TWY E	63.83' RT
20	615'	176+88.31 TWY E	599.32' RT	98.94'	173+85.87 TWY E	63.83' RT	174+75.55 TWY E	22.30' RT
21	325'	175+93.86 TWY E	325.00' RT	121.09'	174+75.55 TWY E	22.30' RT	175+93.86 TWY E	0.00'
22	135'	174+95.05 TWY E	135.00' LT	212.06'	174+95.05 TWY E	0.00'	38+65.00 TWY E-4	0.00'
23	135'	181+52.40 TWY E	135.00' LT	212.06'	181+52.40 TWY E	0.00'	28+65.00 TWY E-3	0.00'

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

50 0 50 100
Scale Feet

KEY MAP

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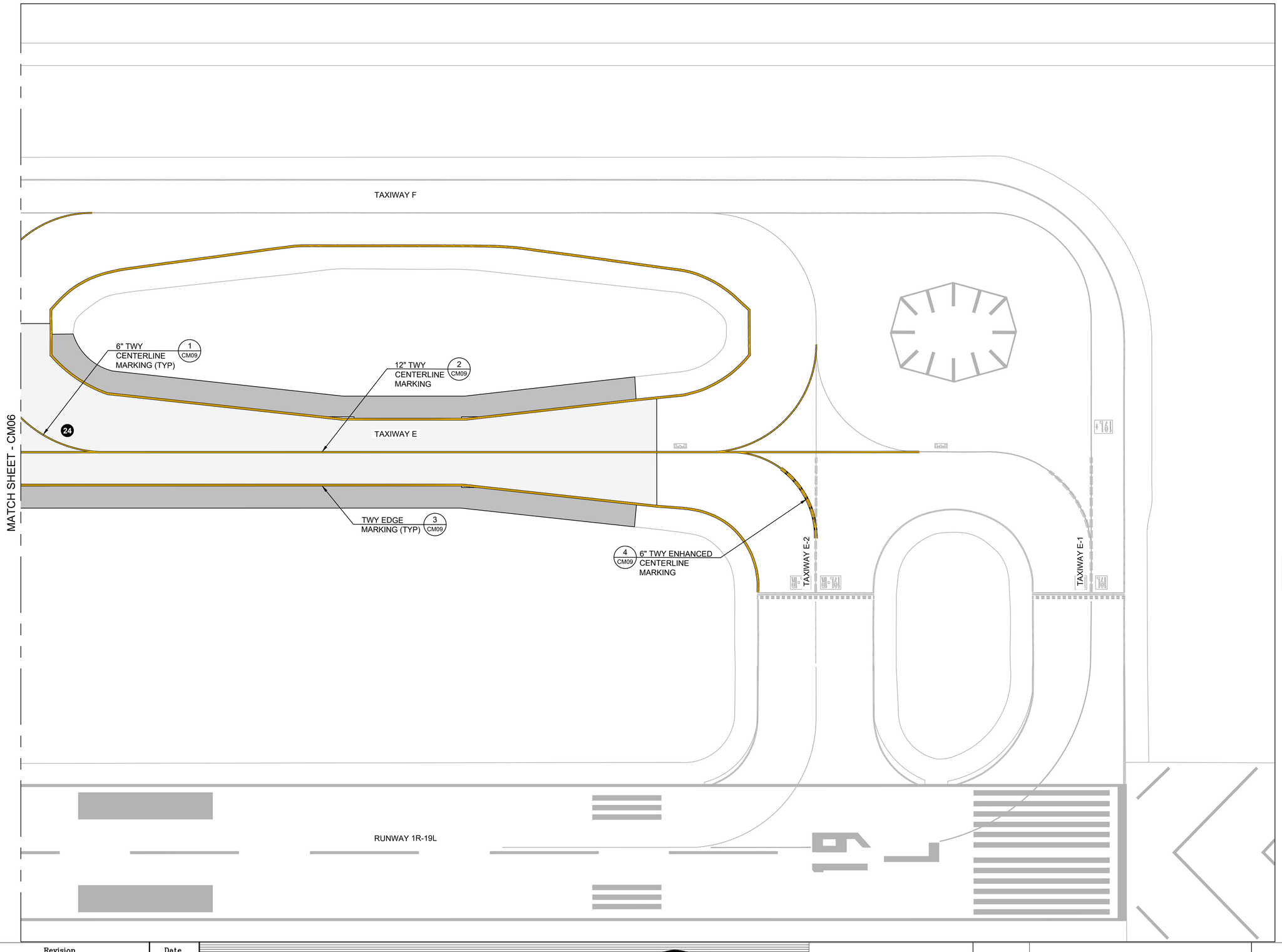
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

MARKING PLAN

Design: MMW	CAD File:62230566CM01.dwg	Aviation Project No.	62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	CM06 71 of 104

CAD File: 62230566CM01.dwg



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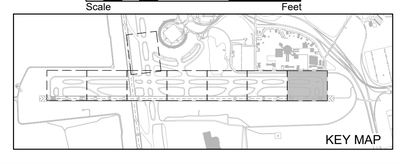
#	RADIUS	CC STA.	CC OFFSET	LEN.	PC STA.	PC OFFSET	PT STA.	PT OFFSET
24	135'	184+22.40 TWY E	135.00' LT	212.06'	184+22.40 TWY E	0.00'	28+65.00 TWY E-3	0.00'

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

N

50 0 50 100
Scale Feet



No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT
KCI

HNTB
715 Kirk Drive
Kansas City, MO 64105
Licensee No. 001270

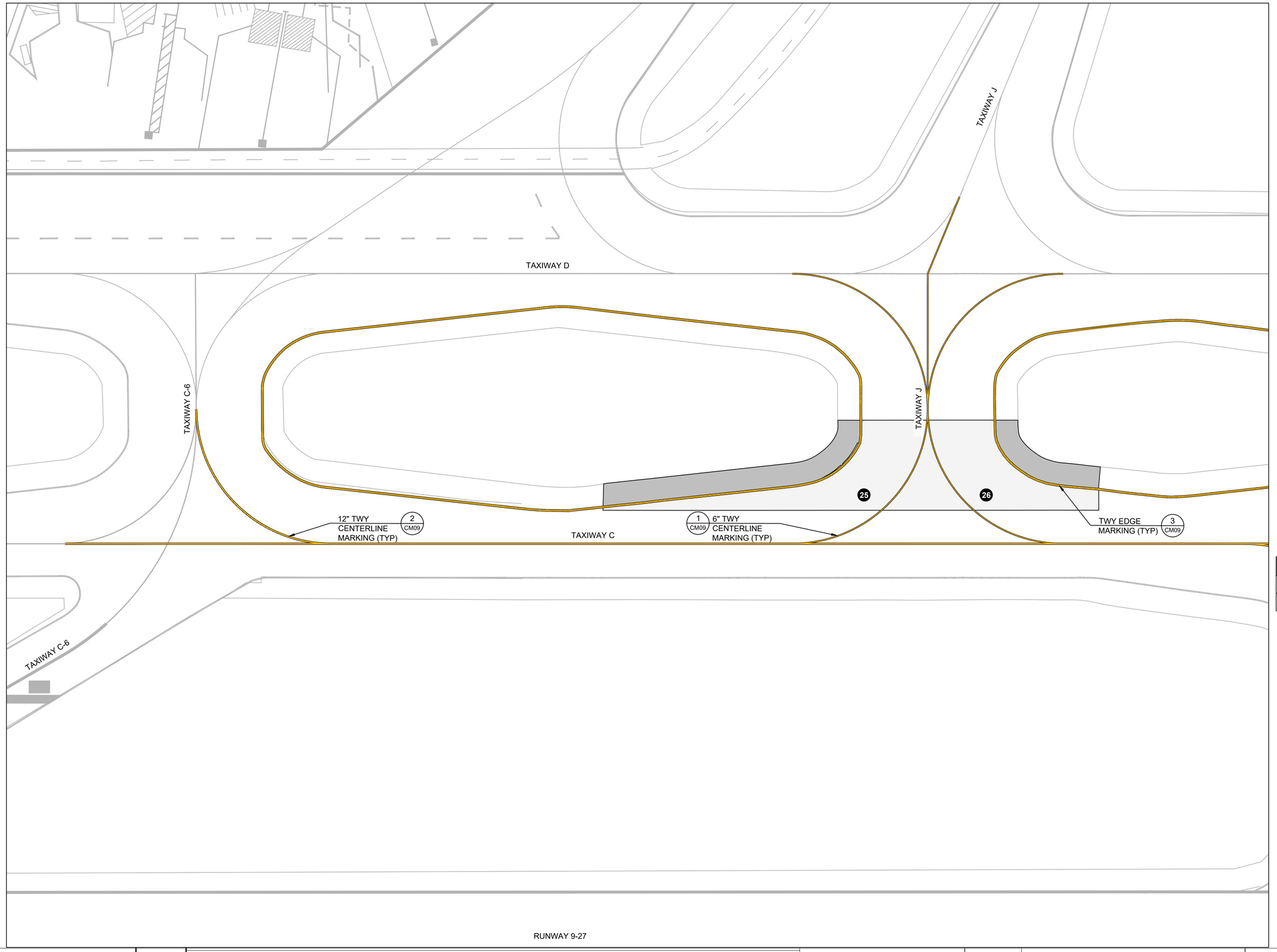
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

MARKING PLAN

Design: MMW	CAD File:62230566CM01.dwg	Aviation Project No.	62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	CM07 72 of 104

CAD File: 62230566CM01.dwg



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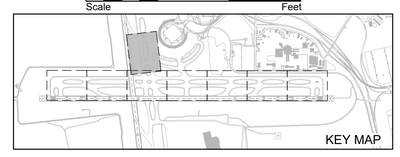
#	RADIUS	CC STA.	CC OFFSET	LEN.	PC STA.	PC OFFSET	PT STA.	PT OFFSET
25	150'	11+50.00 TWY J	150.00' LT	235.62'	11+50.00 TWY J	0.00'	303+57.33 TWY C	0.00'
26	150'	11+50.00 TWY J	150.00' RT	235.62'	11+50.00 TWY J	0.00'	306+57.33 TWY C	0.00'

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

50 0 50 100
Scale Feet



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CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

MARKING PLAN

Design: MMW	CAD File:62230566CM01.dwg	Aviation Project No.	62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No.	CM08 73 of 104

CAD File: 62230566CM01.dwg



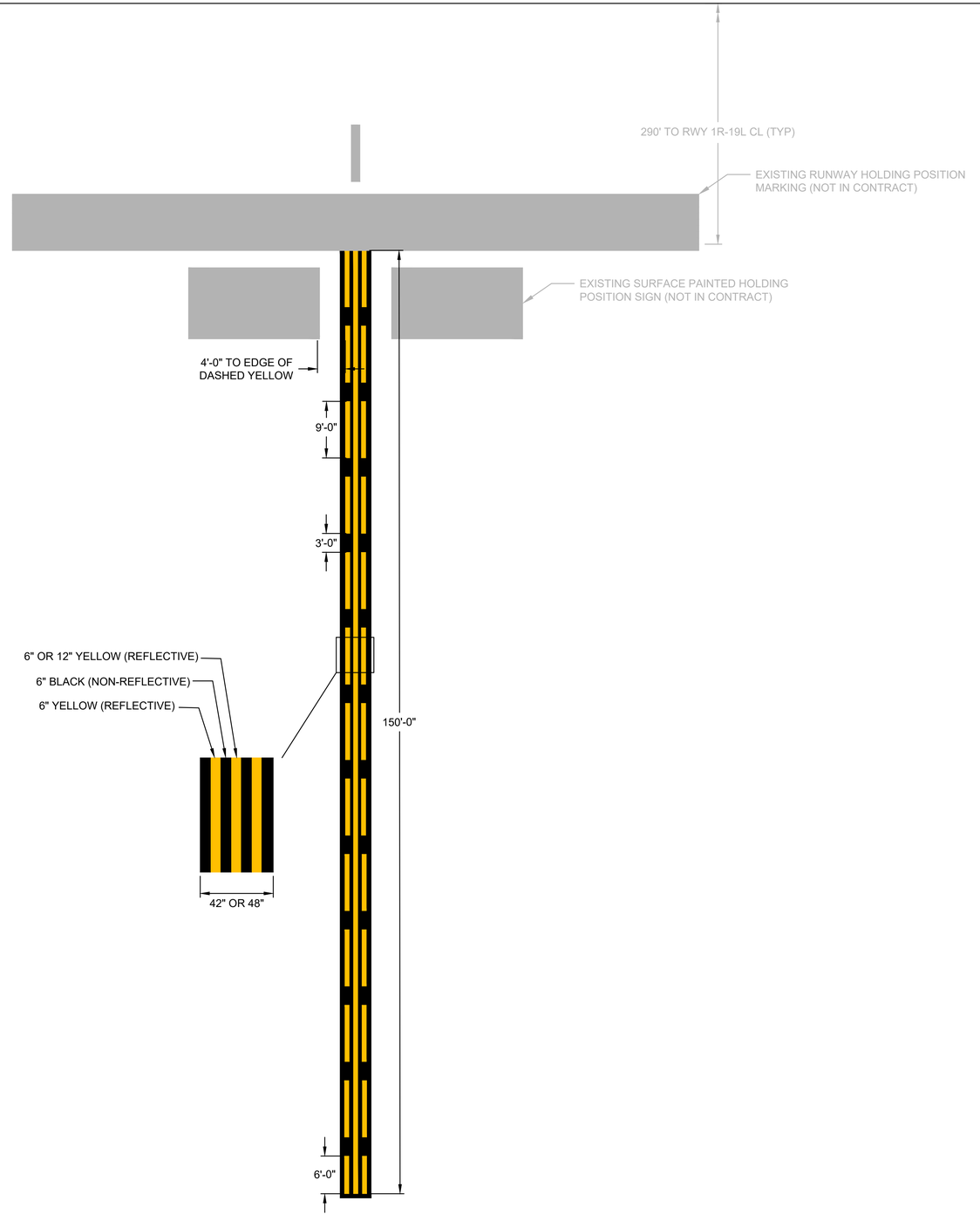
1 6" TAXIWAY CENTERLINE MARKING
NOT TO SCALE



2 12" TAXIWAY CENTERLINE MARKING
NOT TO SCALE



3 TAXIWAY EDGE MARKING
NOT TO SCALE



4 ENHANCED TAXIWAY CENTERLINE MARKING
NOT TO SCALE

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STATE OF MISSOURI
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CITY OF FOUNTAINS HEART OF THE NATION
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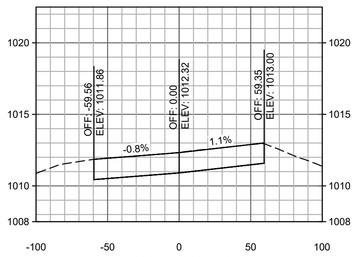
TAXIWAY E AND TAXIWAY J REHABILITATION

MARKING DETAILS

Design: MMW	CAD File:62230566CM09.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CM09 74 of 104

CAD File: 62230566CM09.dwg



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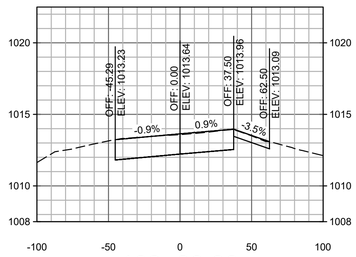

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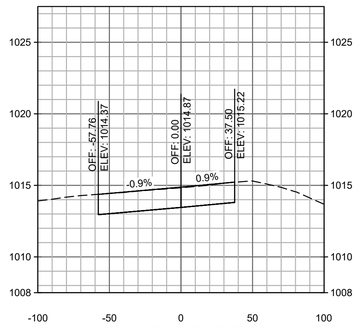

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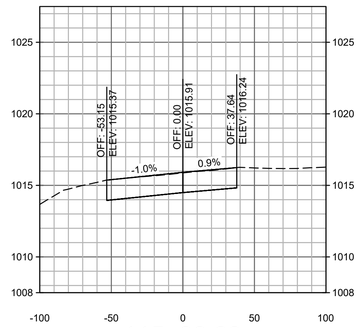

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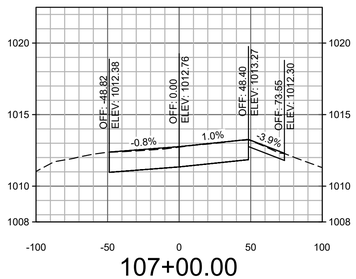

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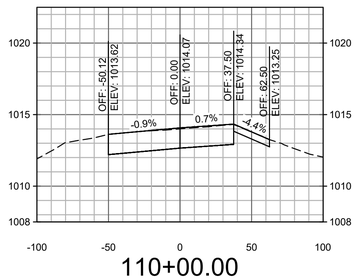

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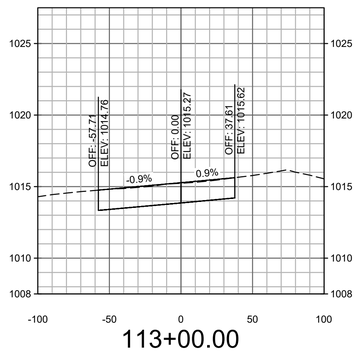

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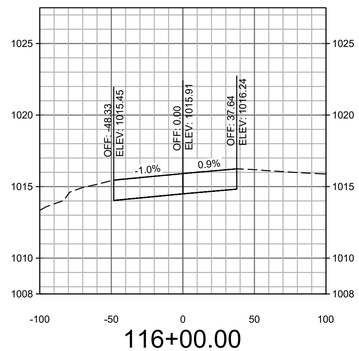

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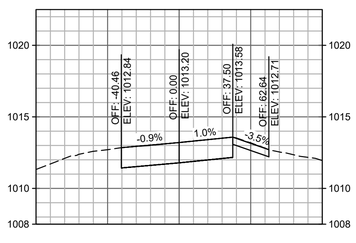
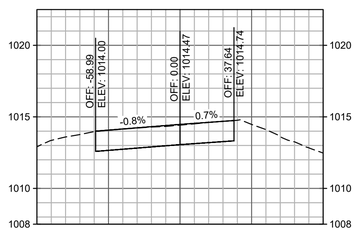


108+00.00



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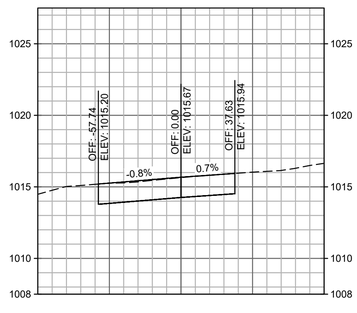

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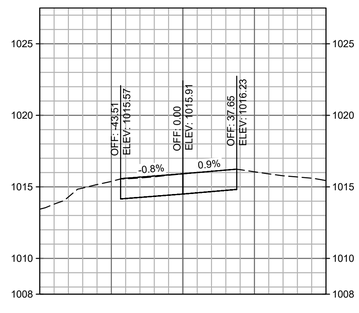

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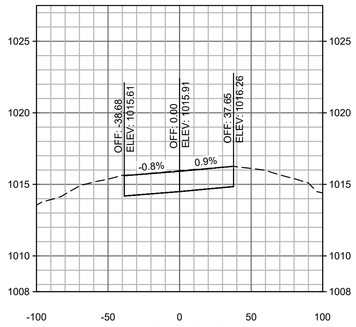
MISSOURI

TAXIWAY E AND TAXIWAY J
REHABILITATION

CROSS SECTIONS

Design: MMW	CAD File: KCI-TWYE-XS.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CX01 75 of 104

CAD File: KCI-TWYE-XS.dwg



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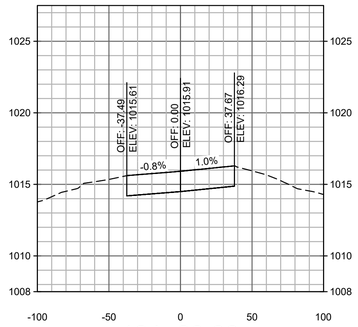

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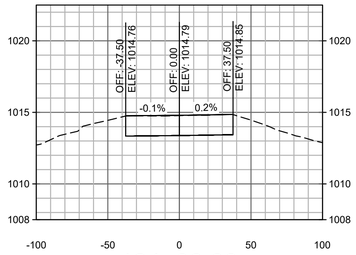

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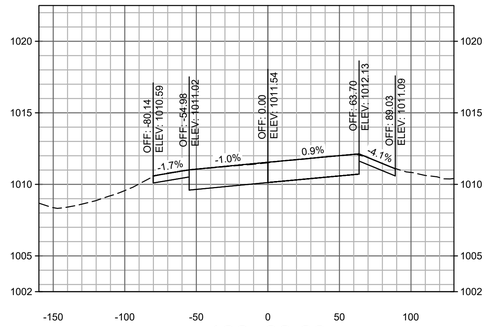

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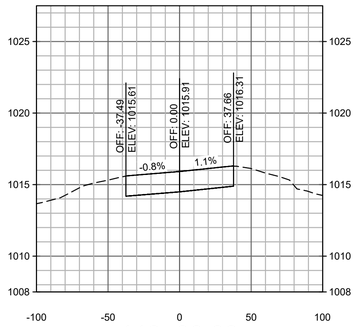

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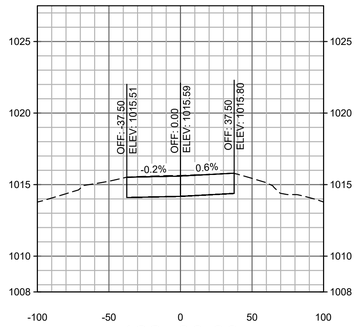

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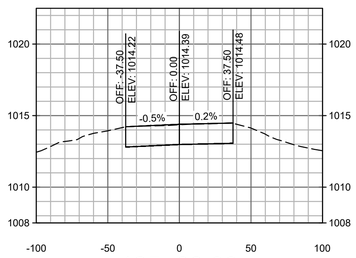

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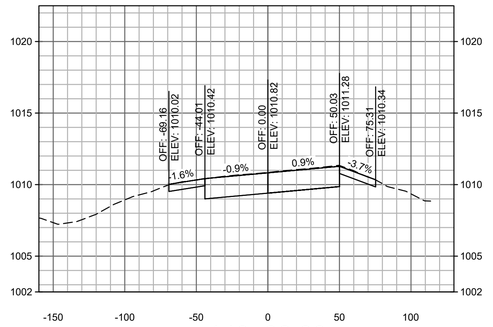

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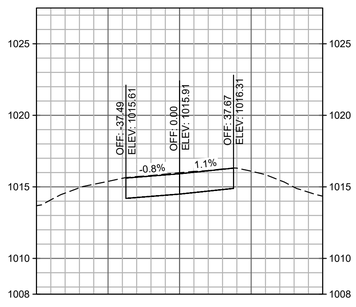

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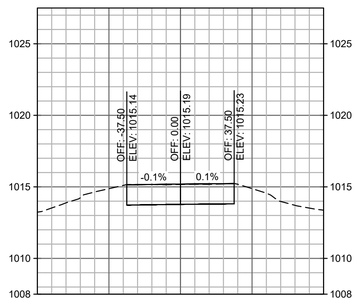

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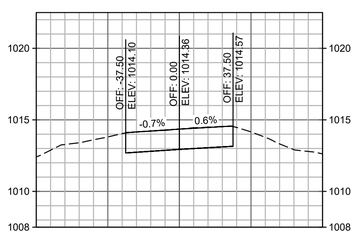

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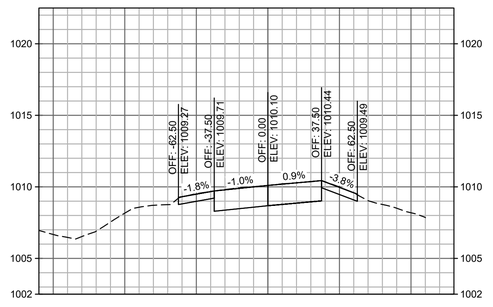


141+00.00

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT

KCI

HNTB
715 Kirk Drive
Kansas City, MO 64105
Licensee No. 001270

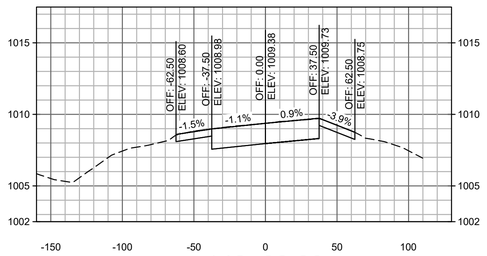
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

CROSS SECTIONS

Design: MMW	CAD File: KCI-TWYE-XS.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CX02 76 of 104

CAD File: KCI-TWYE-XS.dwg



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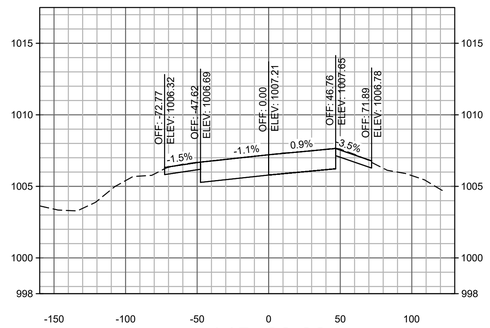

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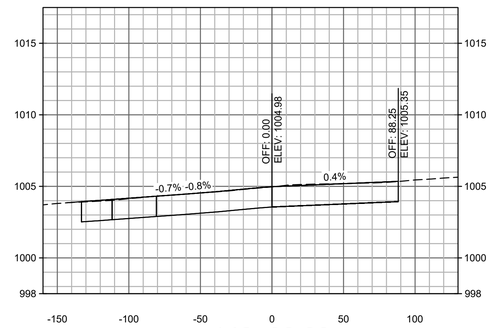

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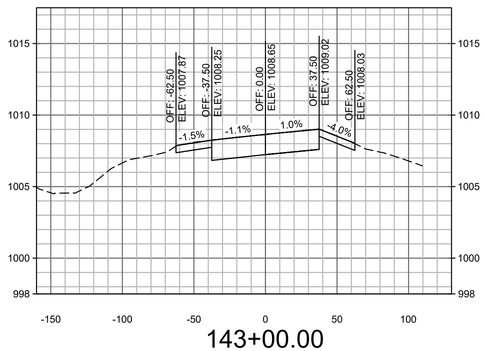

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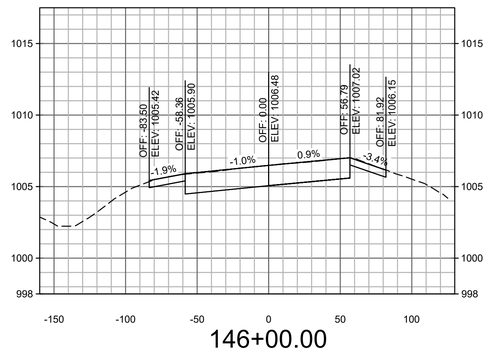

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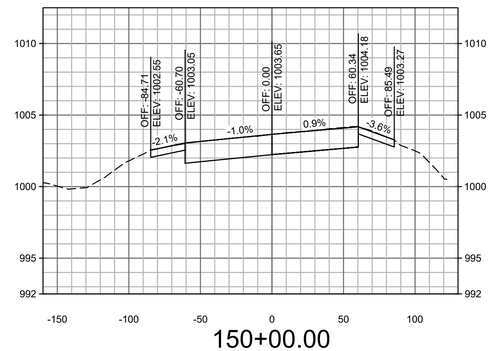

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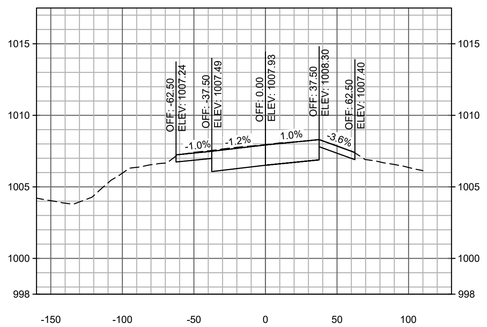

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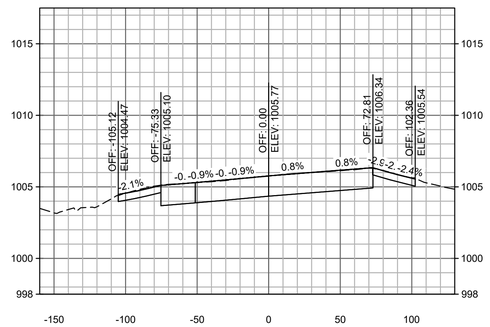

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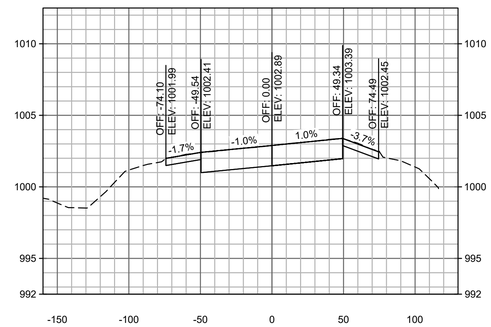

151+00.00



No.	Revision	Date

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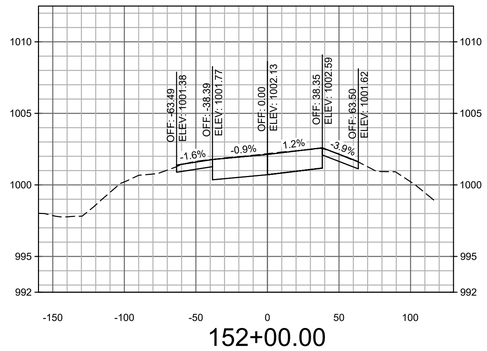
CITY OF FOUNTAINS
HEART OF THE NATION
KANSAS CITY
MISSOURI

TAXIWAY E AND TAXIWAY J
REHABILITATION

CROSS SECTIONS

Design: MMW	CAD File: KCI-TWYE-XS.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CX03 77 of 104

CAD File: KCI-TWYE-XS.dwg



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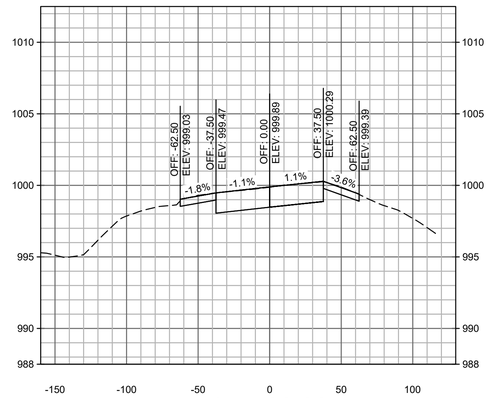

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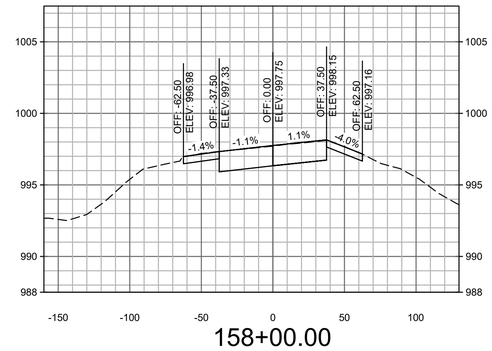

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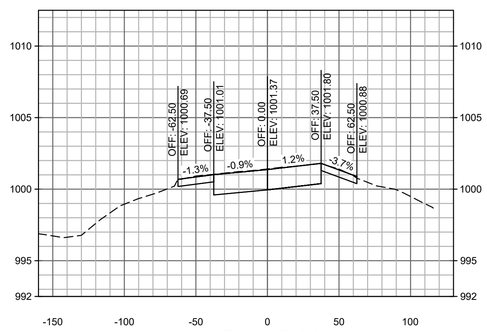

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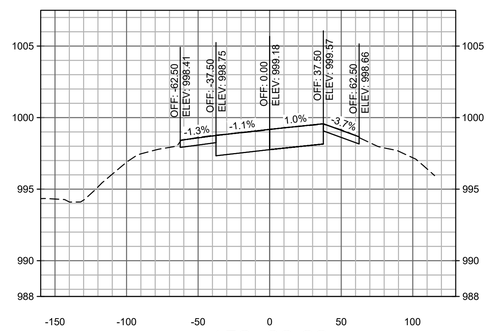

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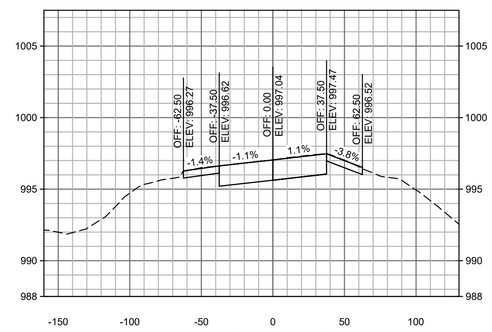

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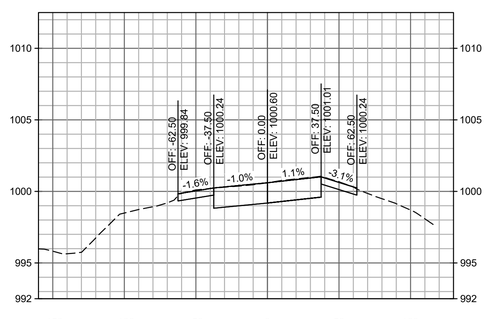

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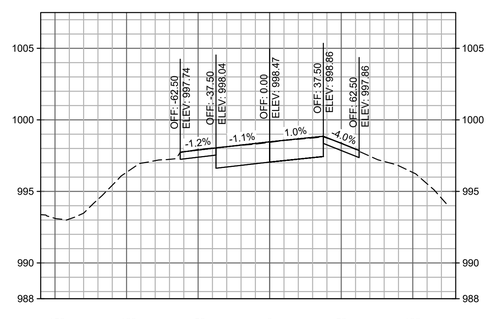

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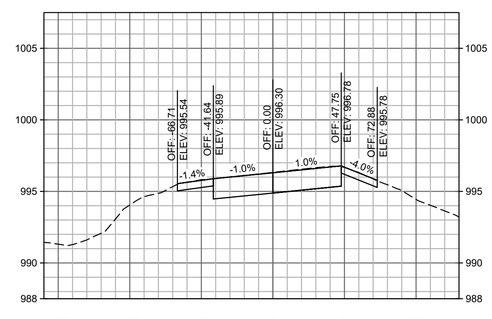

160+00.00

STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT

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715 Kirk Drive
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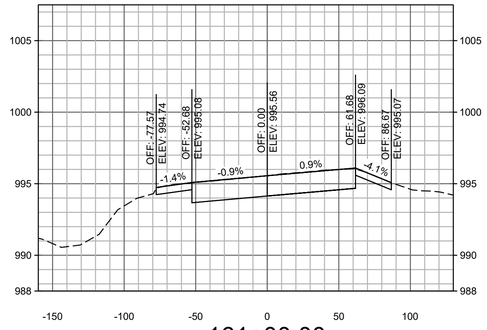
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

CROSS SECTIONS

Design: MMW	CAD File: KCI-TWYE-XS.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CX04 78 of 104

CAD File: KCI-TWYE-XS.dwg



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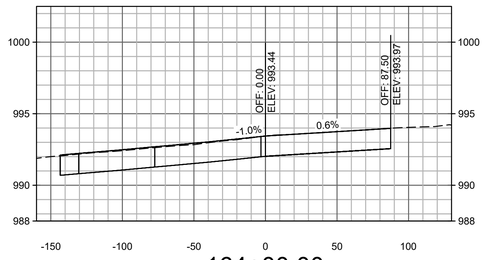

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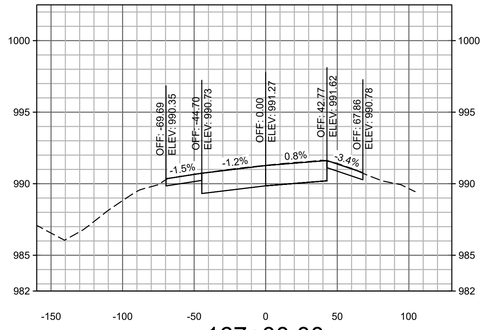

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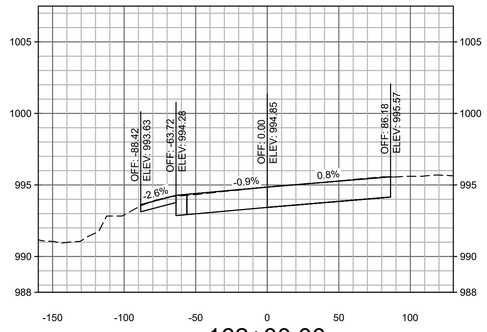

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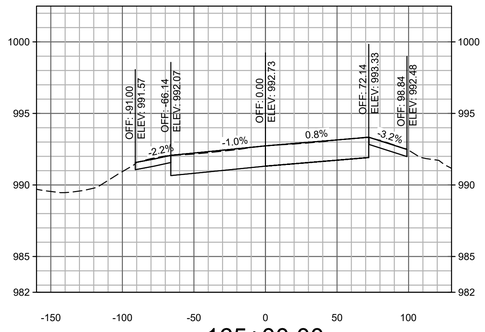

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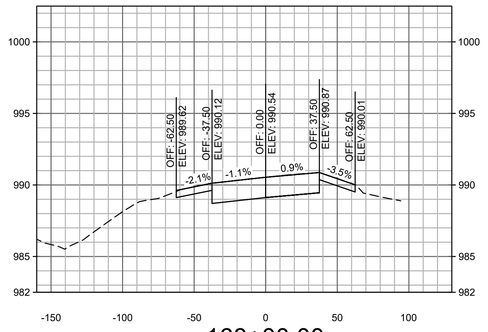

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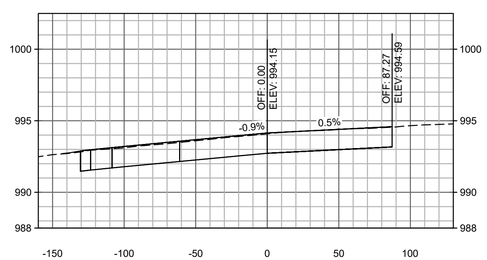

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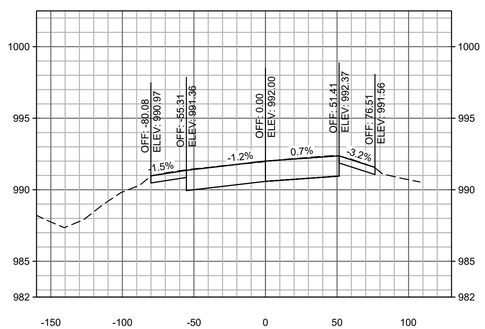

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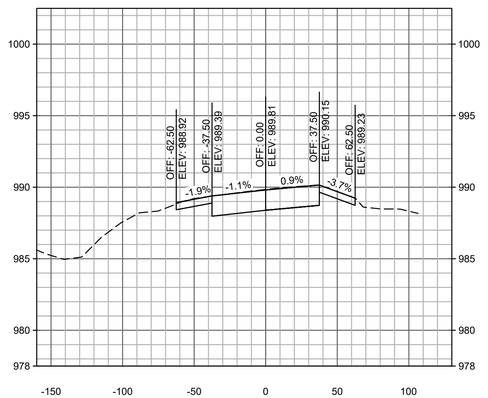

169+00.00

LYNETTE MELLETT
NUMBER PE-2015000016
STATE OF MISSOURI
PROFESSIONAL ENGINEER

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT

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Licensee No. 001270

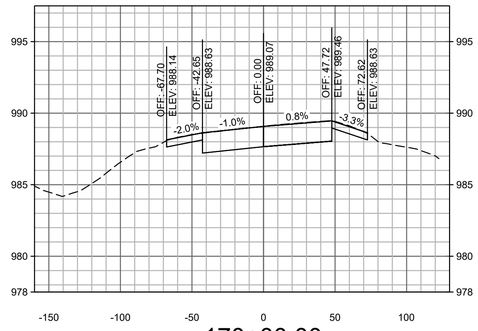
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

CROSS SECTIONS

Design: MMW	CAD File: KCI-TWYE-XS.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CX05 79 of 104

CAD File: KCI-TWYE-XS.dwg



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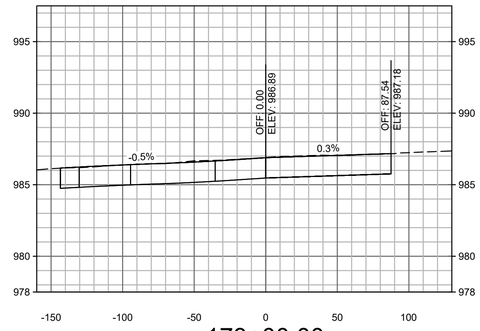

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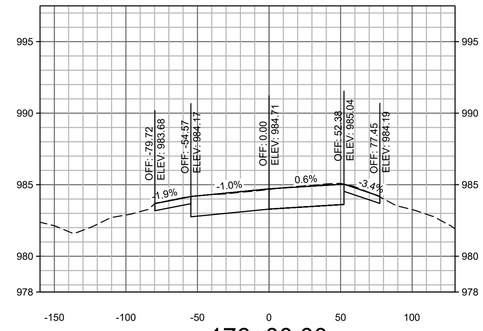

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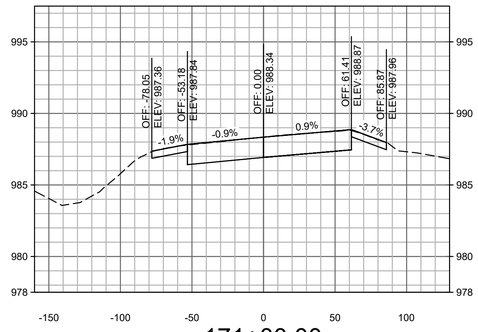

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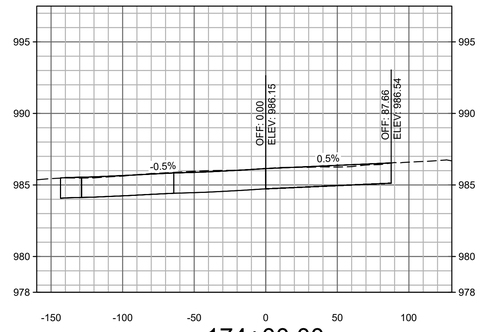

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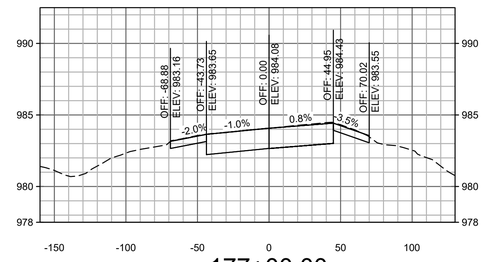

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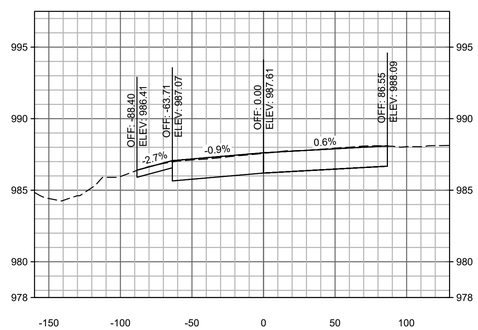

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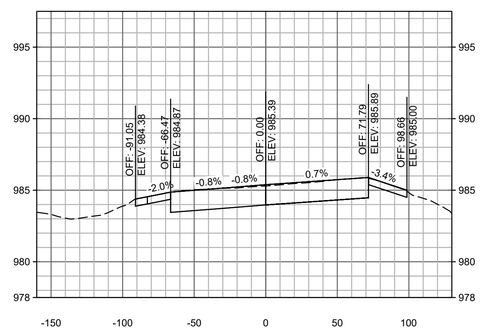

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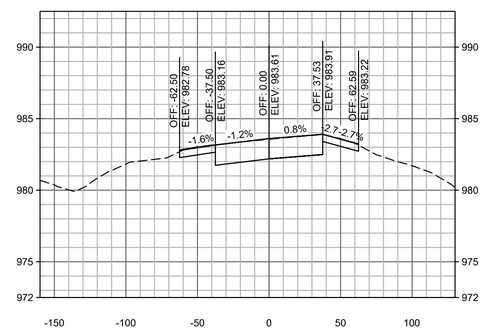

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STATE OF MISSOURI
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NUMBER PE-2015000016
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No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
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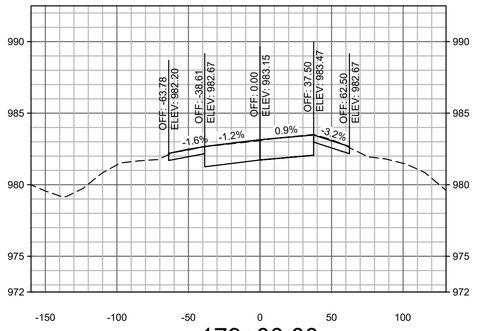
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

CROSS SECTIONS

Design: MMW	CAD File: KCI-TWYE-XS.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CX06 80 of 104

CAD File: KCI-TWYE-XS.dwg



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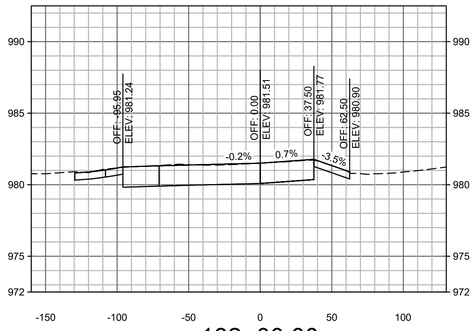

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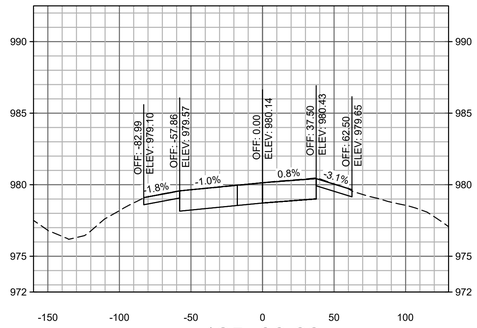

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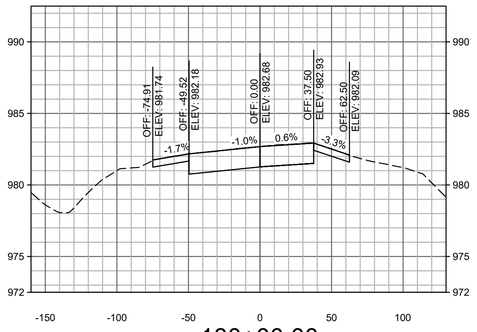

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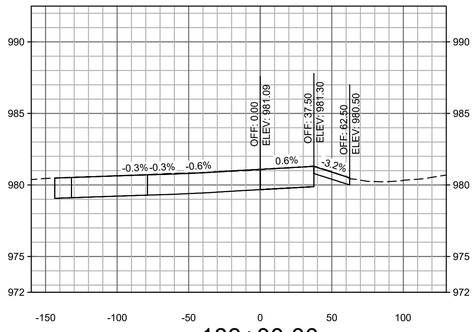

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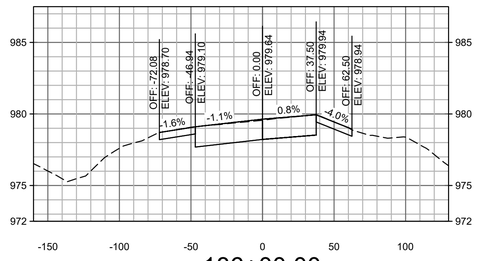

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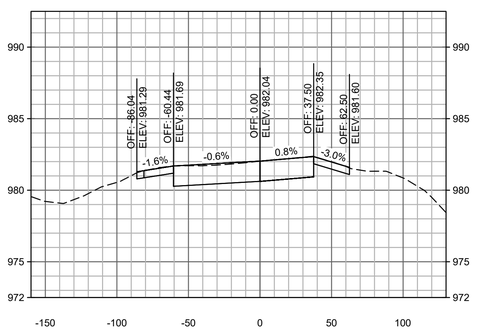

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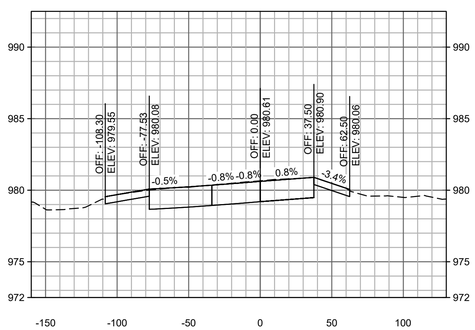

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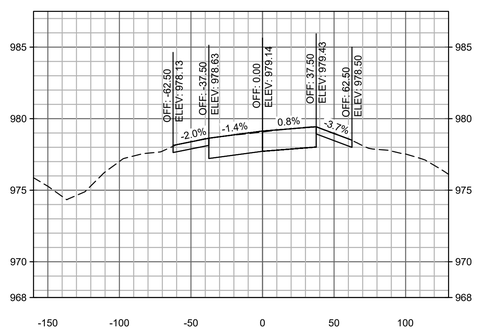

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STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT

KCI

HNTB

715 Kirk Drive
Kansas City, MO 64105
Licensee No. 001270

CITY OF FOUNTAINS
HEART OF THE NATION
KANSAS CITY
MISSOURI

TAXIWAY E AND TAXIWAY J
REHABILITATION

CROSS SECTIONS

Design: MMW	CAD File: KCI-TWYE-XS.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CX07 81 of 104

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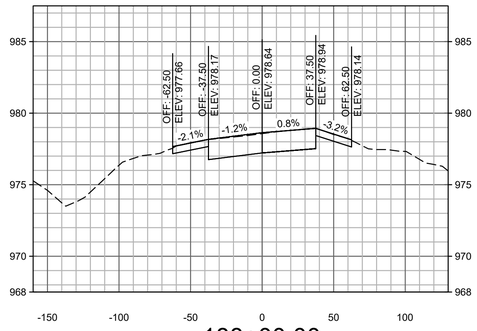

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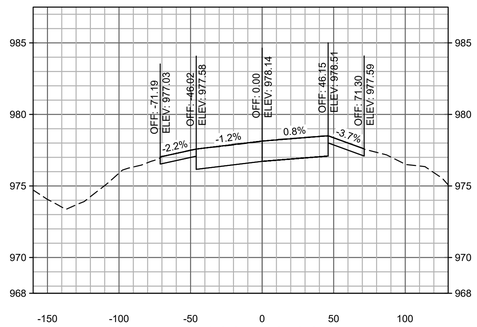

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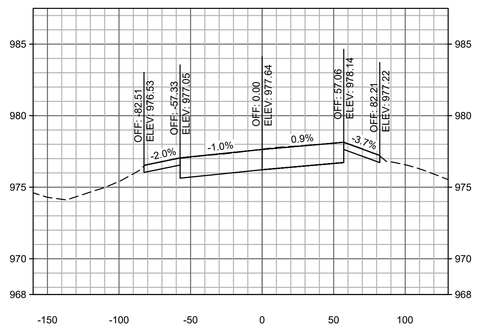

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STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT

KCI

HNTB
715 Kirk Drive
Kansas City, MO 64105
Licensee No. 001270

CITY OF FOUNTAINS
HEART OF THE NATION
KANSAS CITY
MISSOURI

TAXIWAY E AND TAXIWAY J
REHABILITATION

CROSS SECTIONS

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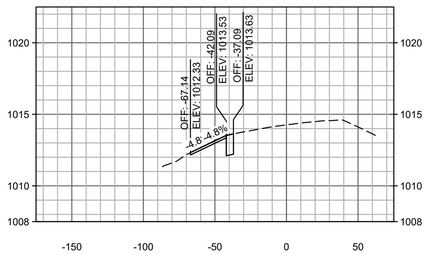
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CX08 82 of 104

CAD File: KCI-TWYE-XS.dwg



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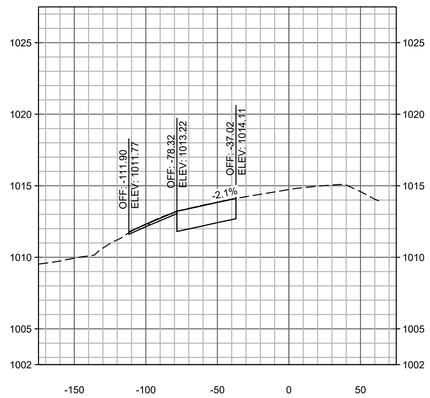

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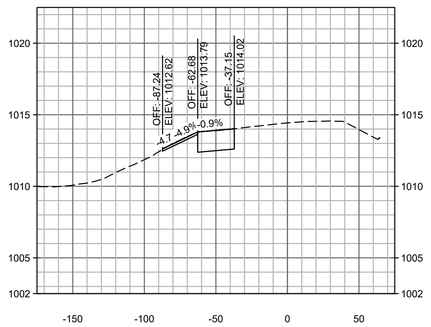

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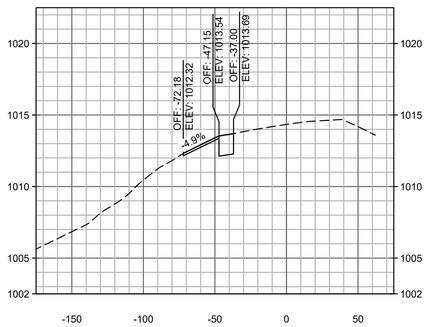

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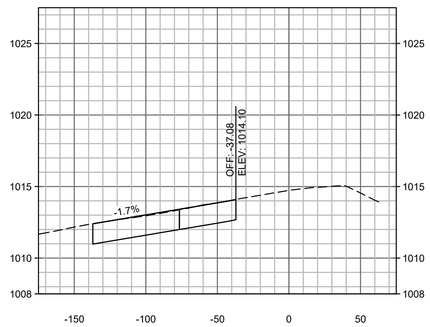

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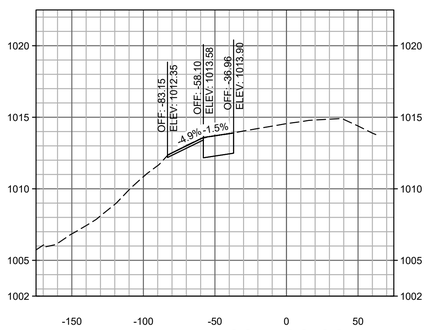

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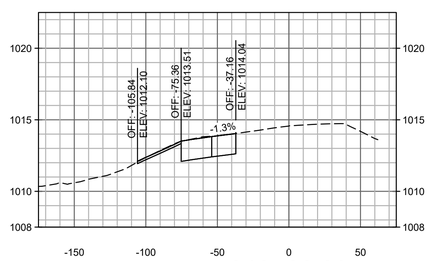

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STATE OF MISSOURI
LYNETTE MELLETT
NUMBER PE-2015000016
PROFESSIONAL ENGINEER

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT

KCI

HNTB
715 Kirk Drive
Kansas City, MO 64105
Licensee No. 001270

CITY OF FOUNTAINS
HEART OF THE NATION
KANSAS CITY
MISSOURI

TAXIWAY E AND TAXIWAY J
REHABILITATION

CROSS SECTIONS

Design: MMW	CAD File: KCI-TWYE-XS.dwg	Aviation Project No. 62230566
Drawn: NLK	Dwg Date: 2/9/23	Dwg. No. CX09 83 of 104

CAD File: KCI-TWYE-XS.dwg

SYMBOL	ITEM DESCRIPTION
	L-852D, UNIDIRECTIONAL, T/W CENTERLINE LIGHT. SOLID AREA DENOTES DIRECTION OF THE LIGHT BEAM. Y - YELLOW OR G - GREEN
	L-861T, OMNIDIRECTIONAL, BLUE, LED MITL T/W EDGE LIGHT.
B	EXISTING IN-PAVE BASE CAN LIGHTS WITH BLANK COVER ON LIGHT BASE TO BE REMOVED
x x	EXISTING L-824, TYPE C, 5KV, #6 AWG, CABLE(S) TO BE REMOVED FROM EXISTING DUCT BANK/CONDUIT SYSTEM
xx xx	EXISTING L-824, TYPE C, 5KV, #6 AWG, CABLE(S) AND EXISTING DUCT BANK/CONDUIT SYSTEM TO BE REMOVED
	NEW L-824, TYPE C, 5KV, #6 AWG, CABLES INSTALLED IN NEW DUCT BANK/CONDUIT SYSTEM
	NEW L-824, TYPE C, 5KV, #6 AWG, CABLES INSTALLED IN EXISTING DUCT BANK/CONDUIT SYSTEM

SYMBOL	ITEM DESCRIPTION
R G	EXISTING BIDIRECTIONAL L-862E, R/W THRESHOLD LIGHT. R - RED, G - GREEN
	EXISTING L-852D, UNIDIRECTIONAL, T/W CENTERLINE LIGHT.
	EXISTING L-852D, BIDIRECTIONAL, T/W CENTERLINE LIGHT.
	EXISTING L-852D, T/W CENTERLINE LIGHT.
	EXISTING, OMNIDIRECTIONAL, T/W EDGE LIGHT
	EXISTING L-850C, BIDIRECTIONAL, ELEVATED R/W EDGE LIGHT Y/W - YELLOW/WHITE OR W/W - WHITE/WHITE
	EXISTING BIDIRECTIONAL, IN-PAVEMENT R/W EDGE LIGHT
B	EXISTING IN-PAVE BASE CAN LIGHTS WITH BLANK COVER ON LIGHT BASE
	EXISTING L-858, AIRFIELD SIGN
	EXISTING L-824, CABLES INSTALLED IN EXISTING CONDUIT SYSTEM TO REMAIN
MH-XX	EXISTING MANHOLE/HANDHOLE, MH-XXX/HH-XXX ARE UNIQUE IDENTIFICATION NUMBERS
	EXISTING L-850A RUNWAY CENTER LINE
	EXISTING L-850B TDZ (BANK OF 3)
	EXISTING L-806 WINDCONE
	EXISTING JUNCTION CAN BANK
	EXISTING L-804, UNIDIRECTIONAL, YELLOW ELEVATED RUNWAY GUARD LIGHT.

GENERAL ELECTRICAL NOTES:

1. PROJECT PAY ITEMS INCLUDED IN ELECTRICAL TECHNICAL SPECIFICATIONS ARE PROVIDED TO BE INCLUSIVE OF ALL WORK TO BE PERFORMED AS INDICATED IN THE CONTRACT DOCUMENTS. WORK NOT IDENTIFIED WITH A SPECIFIC PAY ITEM IS TO BE CONSIDERED REQUIRED WORK TO COMPLETE THE PROJECT, AND SHALL BE SUBSIDIARY TO THE COST OF PROJECT PAY ITEMS PROVIDED.

2. WHEREVER IN THE CONTRACT DOCUMENTS THE WORDS "PROVIDE"," FURNISH", "INSTALL", "FURNISH AND INSTALL", OR OTHER WORDS OF LIKE IMPORTANCE ARE USED, IT SHALL BE UNDERSTOOD THAT THE INTENT OF THE CONTRACT DOCUMENTS IS TO CONSTRUCT AND COMPLETE, IN EVERY DETAIL, THE WORK DESCRIBED OR INDICATED. IT IS FURTHER INTENDED THAT THE CONTRACTOR SHALL ATTEND ALL PROGRESS MEETINGS OR AS MENTIONED IN THE GENERAL CONDITIONS, FURNISH ALL LABOR, SUPERVISION, MATERIALS, EQUIPMENT, TOOLS, TRANSPORTATION, SUPPLIES, TESTING AND INCIDENTALS REQUIRED TO COMPLETE THE WORK IN ACCORDANCE WITH THE DRAWINGS (PLANS), SPECIFICATIONS AND TERMS OF THE CONTRACT.

3. OBTAIN AND PAY FOR ALL REQUIRED PERMITS, LICENSES, ETC., PRIOR TO COMMENCEMENT OF WORK. THE COST OF PERMITS, LICENSES, ETC., SHALL BE INCIDENTAL TO AND INCLUDED IN THE BID FOR THE RESPECTIVE PAY ITEMS.

4. REFER TO CIVIL DRAWINGS FOR ACTUAL JOINT LAYOUTS, DRAINAGE, PAVING DETAILS, ETC. CIVIL DATA IS SHOWN ON ELECTRICAL DRAWINGS FOR REFERENCE ONLY.

5. ITEMS SHOWN IN SCREEN (GHOST) ARE EXISTING ITEMS. ITEMS SHOWN IN SOLID (BOLD) ARE NEW TO BE PROVIDED UNDER THIS CONTRACT, UNLESS OTHERWISE NOTED.

6. THE AIRPORT MAINTENANCE DEPARTMENTS' "LOCK/TAG/TRY" PROCEDURE AND NFPA 70E SHALL BE COMPLIED WITH BY THE CONTRACTOR.

7. EXISTING CONDITIONS AS INDICATED ON THESE DRAWINGS ARE FROM ORIGINAL "AS-BUILT" DRAWINGS AND FIELD INSPECTIONS. ALL EXISTING CONDITIONS SHALL BE VERIFIED PRIOR TO INITIATION OF WORK. FIELD CONDITIONS WILL GOVERN. ANY DISCREPANCIES MUST BE REPORTED TO THE RESIDENT ENGINEER PRIOR TO CONSTRUCTION, AND NOTED ON THE PROJECT RECORD DRAWINGS.

8. EXISTING CONDUIT, DUCT BANK, CIRCUITING AND UTILITY INFORMATION IS BASED ON THE AIRPORT'S "AS-BUILT" AND "RECORD" DRAWINGS, AND SITE VISITS BY THE UTILITIES. EXISTING UTILITY LOCATIONS INDICATED ON THE PLANS ARE APPROXIMATE AND SHALL NOT BE SCALED FOR EXACT LOCATIONS. CONTACT THE APPROPRIATE UTILITY/AGENCY, PRIOR TO STARTING WORK, AND STAKE/MARK THE LOCATION OF ALL EXISTING UTILITIES. ANY INTERRUPTION OF AN EXISTING SYSTEM OR UTILITY SERVICE SHALL BE COORDINATED AND APPROVED BY THE AUTHORITY, AGENCY OR UTILITY HAVING JURISDICTION, PRIOR TO STARTING WORK.

9. EXISTING SYSTEMS/UTILITIES TO REMAIN SHALL BE PROTECTED FROM DAMAGE. REPLACEMENT OF ANY DAMAGED EXISTING SYSTEMS/UTILITIES TO REMAIN SHALL BE AT THE CONTRACTOR'S EXPENSE. FAA CABLES CANNOT BE SPLICED. DAMAGE TO FAA CABLES WILL RESULT IN THE CONTRACTOR BEING RESPONSIBLE FOR THE COMPLETE REPLACEMENT OF THE FAA CABLES.

10. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THAT ALL AIRFIELD LIGHTING CIRCUITS, EXCEPT THOSE THAT ARE SERVING CLOSED TAXIWAYS OR RUNWAYS, ARE COMPLETELY OPERATIONAL, USING TOWER CONTROLS, AT THE END OF EACH WORK SHIFT AND SHALL SO CERTIFY TO THE OWNER BEFORE THE END OF EACH SHIFT. THE CONTRACTOR SHALL NOT LEAVE THE WORK SITE UNTIL CIRCUIT OPERATION HAS BEEN CONFIRMED BY THE OWNER.

11. THE KCAD IS THE ELECTRIC UTILITY PROVIDER FOR THE PROJECT SITE AND ALL SUCH COORDINATION SHALL BE DIRECTED TO THE RESIDENT ENGINEER AND AIRPORT MAINTENANCE STAFF.

DEMOLITION NOTES:

1. PRIOR TO ANY DEMOLITION OR CONSTRUCTION IN THE FIELD, THE CONTRACTOR SHALL SURVEY THE LOCATION OF ALL EXISTING ELECTRICAL ITEMS WITHIN THE SCOPE OF THIS PROJECT. THIS SURVEY SHALL INCLUDE BUT IS NOT LIMITED TO LIGHTING FIXTURES, JUNCTION CANS AND ALL OTHER ELECTRICAL ITEMS THAT WILL BE IMPACTED BY THE PAVEMENT REHABILITATION. CONTRACTOR SHALL ALSO MARK-UP AND PROVIDE AN AS-BUILT DRAWING OF EXISTING LIGHT FIXTURES INDICATING LIGHT BEAM DIRECTION, COLOR AND TOE, LOCATION OF EXISTING FIXTURE IDENTIFICATION MARKERS INCLUDING EXISTING LEGEND AND ANY OTHER INFORMATION THAT WILL BE REQUIRED FOR REINSTALLATION OF ELECTRICAL ITEMS. COPIES OF THE SURVEY AND AS-BUILT DRAWINGS SHALL BE SUBMITTED TO THE PROJECT ENGINEER. THE ABOVE INFORMATION WILL BE UTILIZED BY THE REINSTALLATION OF ELECTRICAL ITEMS TO MATCH EXISTING. THE COST OF THE WORK SHALL BE INCIDENTAL TO THE AIRFIELD ELECTRICAL PAY ITEMS.

2. PRIOR TO ANY DEMOLITION OR CONSTRUCTION IN THE FIELD, THE CONTRACTOR SHALL PERFORM A FUNCTIONAL TEST OF ALL EXISTING ITEMS WITHIN THE SCOPE OF THIS PROJECT. ANY MALFUNCTIONS SHALL BE NOTED ON THE AS-BUILT DRAWING AND IN A REPORT. THIS REPORT SHALL INCLUDE ITEMS SUCH AS DAMAGED FIXTURES (OUTSIDE OF NORMAL WEAR) BURNED OUT/NON-FUNCTIONING LAMPS. DAMAGED CANS AND ANY OTHER ITEMS OBSERVED. A COPY OF THIS REPORT SHALL BE SUBMITTED TO THE PROJECT ENGINEER AND AIRPORT MAINTENANCE SUPERVISOR. AT THE BEGINNING OF THE PROJECT AND AT THE COMPLETION OF WORK, AN INSULATION RESISTANCE (MEGGER) TEST SHALL BE PERFORMED ON EXISTING SERIES CIRCUITS IN THE PRESENCE OF THE ENGINEER. RESULTS SHALL BE INCLUDED IN THE ABOVE REPORT. SEE SPECIFICATION L-105-1.2 FOR TESTING REQUIREMENTS AND FORMS. AFTER REINSTALLATION ANY DAMAGE OR MALFUNCTIONS NOT DOCUMENTED WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR OR REPLACE AT HIS EXPENSE, THE COST OF THE ABOVE WORK SHALL BE INCIDENTAL TO THE AIRFIELD ELECTRICAL PAY ITEMS.

3. THE LIGHTING PLANS ARE NOT INCLUSIVE OF ALL ELECTRICAL DEVICES WITHIN THE PROJECT AREA. IT IS INTENDED TO PROVIDE A KNOWLEDGE OF THE EXISTING CONDITIONS. EXISTING CONDITIONS NOT INDICATED ON THE REMOVAL PLANS SHALL REMAIN THE RESPONSIBILITY OF THE CONTRACTOR. ALL REQUIRED ELECTRICAL DEMOLITION SHALL BE INCLUDED AS PART OF THE PROJECT WORK SCOPE. MAINTAIN CIRCUIT CONTINUITY AT ALL TIMES.

4. ALL UTILITIES SERVING OTHER ACTIVITIES/FUNCTIONS WITHIN THE PROJECT AREA SHALL REMAIN ACTIVE DURING CONSTRUCTION SO AS NOT TO DISTURB OR CAUSE DISRUPTION OF THESE ACTIVITIES/FUNCTIONS.

6. ALL EXISTING CABLE, TRANSFORMERS, AND ASSOCIATED ITEMS REMOVED AND NOT TO BE REUSED ON THIS PROJECT SHALL BE TURNED OVER TO THE KCAD FIELD MAINTENANCE AT THEIR DISCRETION. ALL EXISTING CABLE, TRANSFORMERS, AND ASSOCIATED ITEMS REMOVED AND NOT RETAINED BY THE KCAD FIELD MAINTENANCE SHALL BE CONSIDERED DEBRIS AND SHALL BE LEGALLY DISPOSED OF BY THE CONTRACTOR OFF AIRPORT PROPERTY.

7. ALL EXISTING LIGHT FIXTURES REMOVED AND NOT TO BE REUSED ON THIS PROJECT SHALL BE PROPERLY BOXED OR CRATED, LABELED, PROTECTED FROM DAMAGE, AND TURNED OVER TO THE KCAD FIELD MAINTENANCE AT THEIR DISCRETION. ALL EXISTING LIGHT FIXTURES REMOVED AND NOT RETAINED BY THE KCAD FIELD MAINTENANCE SHALL BE CONSIDERED DEBRIS AND SHALL BE LEGALLY DISPOSED OF BY THE CONTRACTOR OFF AIRPORT PROPERTY.

8. FIELD VERIFY AND COORDINATE REMOVAL OF CABLES WITH AIRFIELD MAINTENANCE TO MAINTAIN OPERATION OF ACTIVE AREAS.

ELECTRICAL ABBREVIATIONS:

AWG	AMERICAN WIRE GAUGE	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
FAA	FEDERAL AVIATION ADMINISTRATION	R/W	RUNWAY
HH	HAND HOLE	TDZ	TOUCHDOWN ZONE
KV	KILOVOLT	T/W	TAXIWAY
LED	LIGHT EMITTING DIODE	TYP	TYPICAL
MH	MANHOLE		
MITL	MEDIUM INTENSITY TAXIWAY LIGHT		

STATE OF MISSOURI
2/9/23
WALTER R. MAY
NUMBER PE-2015000572
PROFESSIONAL ENGINEER
Walter R. May

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT
KCI

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1000 W. Nifong, Building 7, Suite 100
Columbia, Missouri 65203
816.350.1472
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MISSOURI CERTIFICATE OF AUTHORITY #000239

CITY OF FOUNTAINS
HEART OF THE NATION
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MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

ELECTRICAL GENERAL LEGEND, GENERAL NOTES & ABBREVIATIONS

Design: WRM	CAD File: 62230566E00.dwg	Aviation Project No. 62230566
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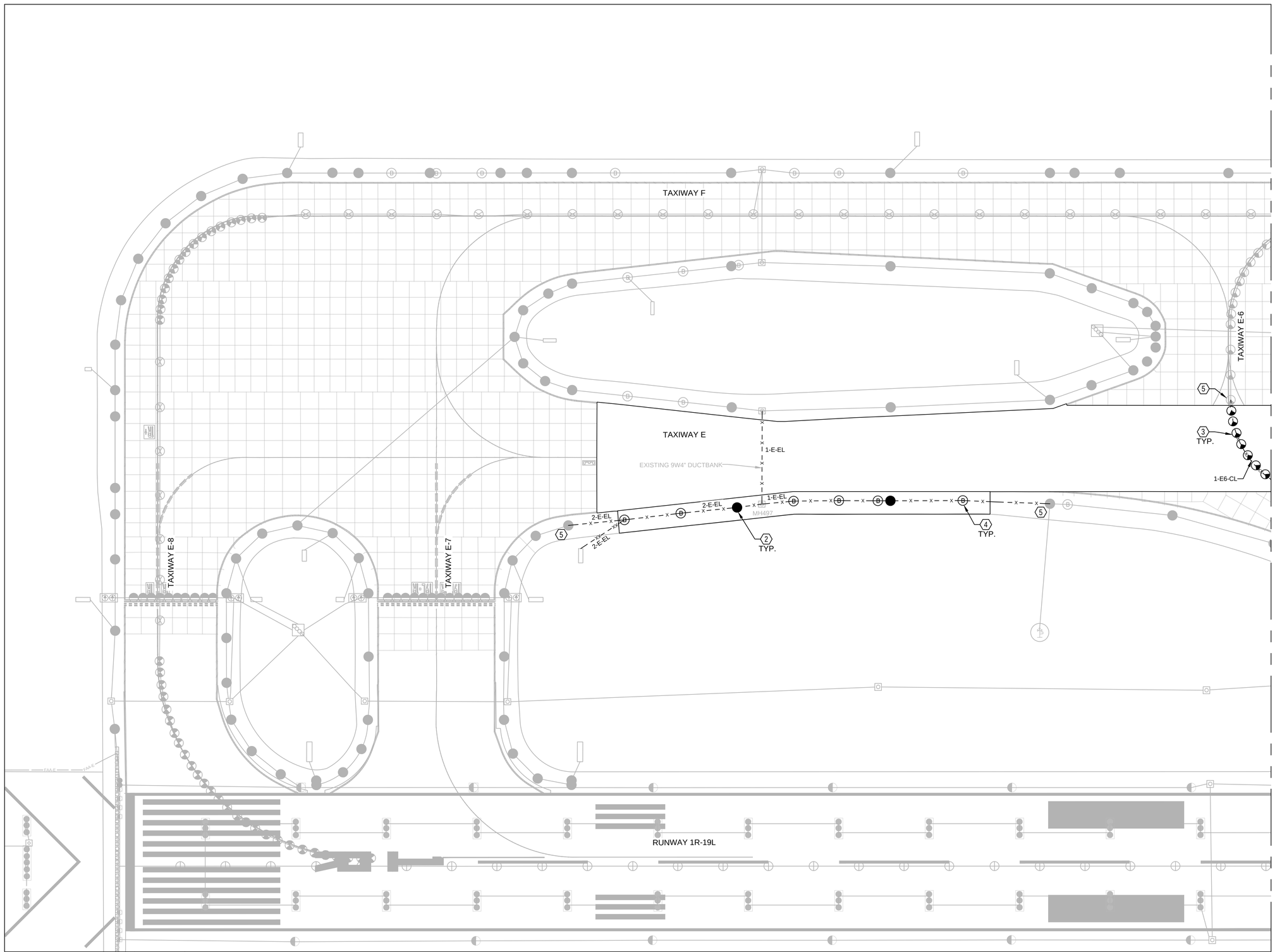

GENERAL NOTES

1. REFER TO SHEET E00 FOR GENERAL NOTES, LEGEND AND ABBREVIATIONS.
2. WHEN EXISTING TRANSFORMER IS TO REMAIN, CONTRACTOR TO PROVIDE WATER TIGHT SEALS ON LIGHT FIXTURE CONNECTORS.
3. FOR FIXTURES BEING REMOVED, THE KCAD HAS FIRST RIGHT OF REFUSAL OTHERWISE CONTRACTOR SHALL DISPOSE OF AS A SUBSIDIARY COST.
4. THE INFORMATION SHOWN IN THIS DRAWING CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO.
5. ANY DAMAGE TO EXISTING ELECTRICAL SYSTEMS, LIGHTING, SIGNAGE, UTILITIES, CONDUIT AND CABLE SHALL RE REPAIRED AT CONTRACTORS EXPENSE,

KEYED NOTES

(1) REMOVE EXISTING ELEVATED TAXIWAY EDGE LIGHT FIXTURE, CABLES AND TRANSFORMER. REMOVE EXISTING BASE CAN, CONCRETE RING, SPACER RING AND CAN EXTENSION.

(2) REMOVE EXISTING ELEVATED TAXIWAY EDGE LIGHT FIXTURE, CABLES AND TRANSFORMER. REMOVE EXISTING BASE CAN, CONCRETE RING, SPACER RING AND CAN EXTENSION. BOX AND STORE EXISTING FIXTURE AND TRANSFORMER FOR REINSTALLATION.

(3) REMOVE EXISTING IN-PAVEMENT TAXIWAY CENTERLINE LIGHT FIXTURE, SMART DEVICE, CABLES AND TRANSFORMER. REMOVE EXISTING BASE CAN, CONCRETE RING, SPACER RING AND CAN EXTENSION. BOX AND STORE EXISTING FIXTURE, SMART DEVICE AND TRANSFORMER FOR REINSTALLATION.

(4) REMOVE EXISTING BLANK CAN. REMOVE EXISTING BASE CAN, CONCRETE RING, SPACER RING AND CAN EXTENSION.

(5) REMOVE EXISTING CABLE TO FIRST FIXTURE OUTSIDE OF PAVEMENT REHABILITATION LIMITS.

(6) REMOVE EXISTING ELEVATED TAXIWAY EDGE LIGHT FIXTURE, CABLES AND TRANSFORMER. INSTALL BLANK COVER ON EXISTING CAN.

STATE OF MISSOURI 2/9/23 WALTER R MAY NUMBER PE-2015000572 PROFESSIONAL ENGINEER

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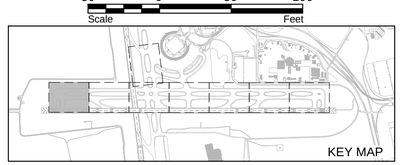

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT
KCI

CUSTOM ENGINEERING
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12750 EAST 40 HIGHWAY
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MISSOURI CERTIFICATE OF AUTHORITY #000239

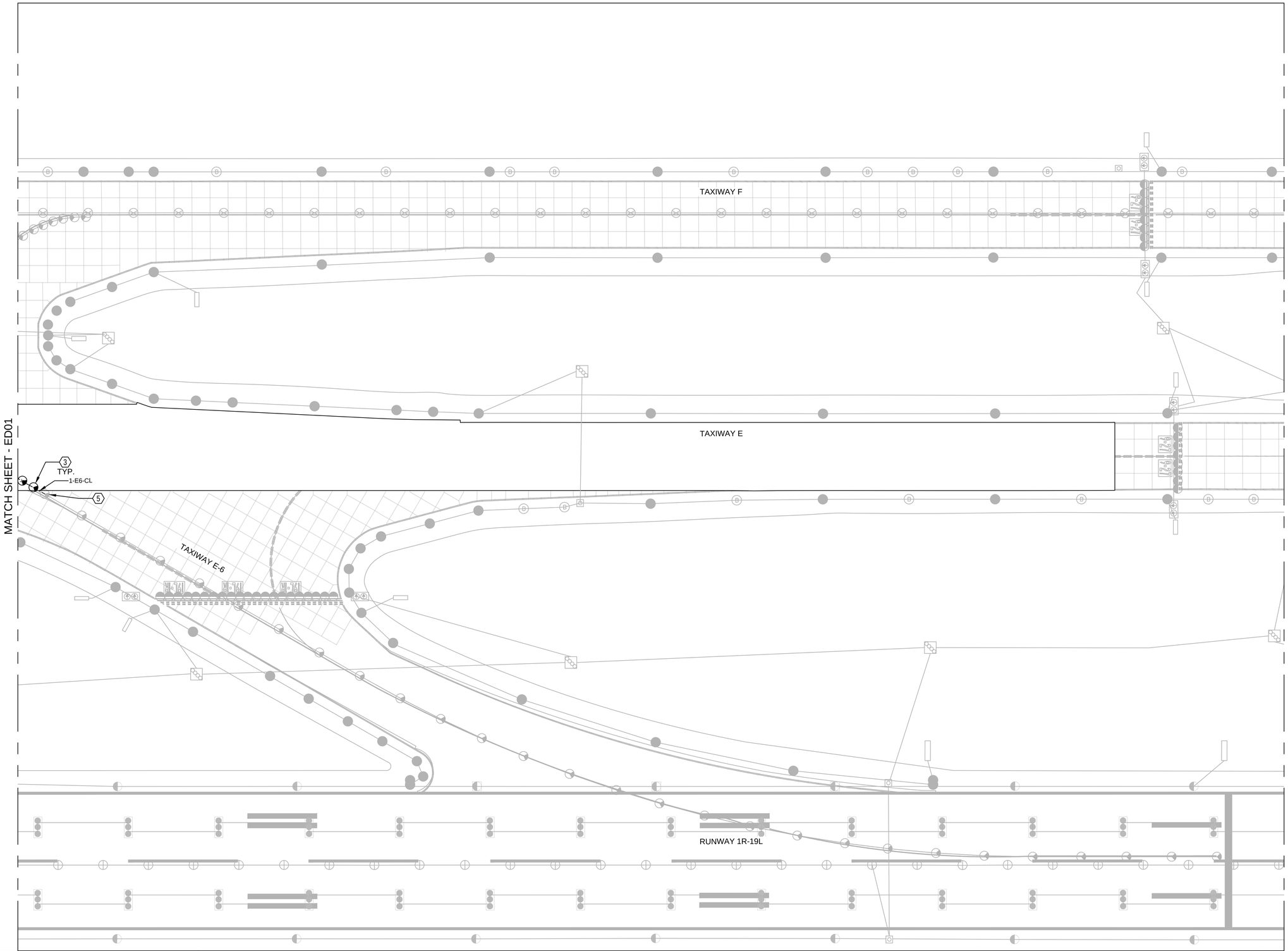
CITY OF FOUNTAINS
HEART OF THE NATION
KANSAS CITY
MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

ELECTRICAL DEMOLITION PLAN

Design: WRM	CAD File:62230566ED01.dwg	Aviation Project No. 62230566
Drawn: CMM	Dwg Date: 2/9/23	Dwg. No. ED01 85 of 104

CAD File: 62230566ED01.dwg



GENERAL NOTES

1. REFER TO SHEET E00 FOR GENERAL NOTES, LEGEND AND ABBREVIATIONS.
2. WHEN EXISTING TRANSFORMER IS TO REMAIN, CONTRACTOR TO PROVIDE WATER TIGHT SEALS ON LIGHT FIXTURE CONNECTORS.
3. FOR FIXTURES BEING REMOVED, THE KCAD HAS FIRST RIGHT OF REFUSAL OTHERWISE CONTRACTOR SHALL DISPOSE OF AS A SUBSIDIARY COST.
4. THE INFORMATION SHOWN IN THIS DRAWING CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO.
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(1) REMOVE EXISTING ELEVATED TAXIWAY EDGE LIGHT FIXTURE, CABLES AND TRANSFORMER. REMOVE EXISTING BASE CAN, CONCRETE RING, SPACER RING AND CAN EXTENSION.

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(3) REMOVE EXISTING IN-PAVEMENT TAXIWAY CENTERLINE LIGHT FIXTURE, SMART DEVICE, CABLES AND TRANSFORMER. REMOVE EXISTING BASE CAN, CONCRETE RING, SPACER RING AND CAN EXTENSION. BOX AND STORE EXISTING FIXTURE, SMART DEVICE AND TRANSFORMER FOR REINSTALLATION.

(4) REMOVE EXISTING BLANK CAN. REMOVE EXISTING BASE CAN, CONCRETE RING, SPACER RING AND CAN EXTENSION.

(5) REMOVE EXISTING CABLE TO FIRST FIXTURE OUTSIDE OF PAVEMENT REHABILITATION LIMITS.

(6) REMOVE EXISTING ELEVATED TAXIWAY EDGE LIGHT FIXTURE, CABLES AND TRANSFORMER. INSTALL BLANK COVER ON EXISTING CAN.

STATE OF MISSOURI
2/9/23
WALTER R. MAY
NUMBER PE-2015000572
PROFESSIONAL ENGINEER

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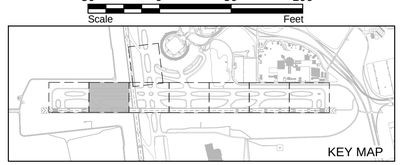
Scale Feet



No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT
KCI

CUSTOM ENGINEERING
MECHANICAL & ELECTRICAL ENGINEERING
12750 EAST 40 HIGHWAY
INDEPENDENCE, MISSOURI 64055
816.350.5470
WWW.CUSTOMENGINEER.COM
MISSOURI CERTIFICATE OF AUTHORITY #000239

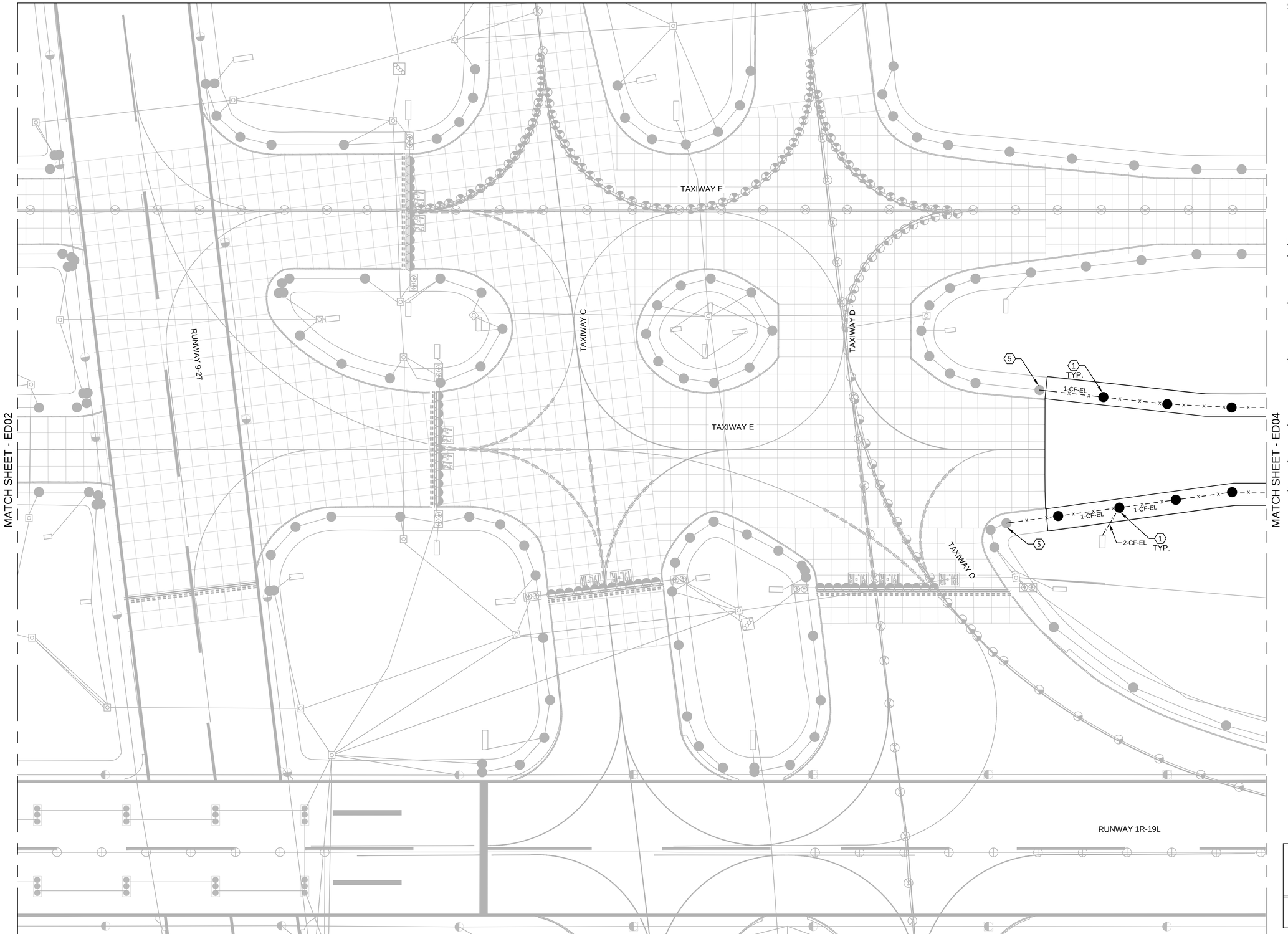
CITY OF FOUNTAINS
HEART OF THE NATION
KANSAS CITY
MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

ELECTRICAL DEMOLITION PLAN

Design: WRM	CAD File:62230566ED01.dwg	Aviation Project No. 62230566
Drawn: CMM	Dwg Date: 2/9/23	Dwg. No. ED02 86 of 104

CAD File: 62230566ED01.dwg



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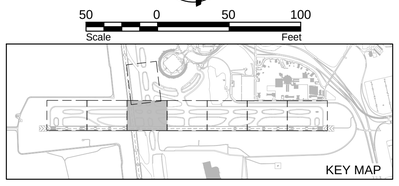

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT

KCI

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MECHANICAL & ELECTRICAL ENGINEERING
1700 EAST 40 HIGHWAY
INDEPENDENCE, MISSOURI 64055
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www.CUSTOMENGINEERING.COM
MISSOURI CERTIFICATE OF AUTHORITY #000208

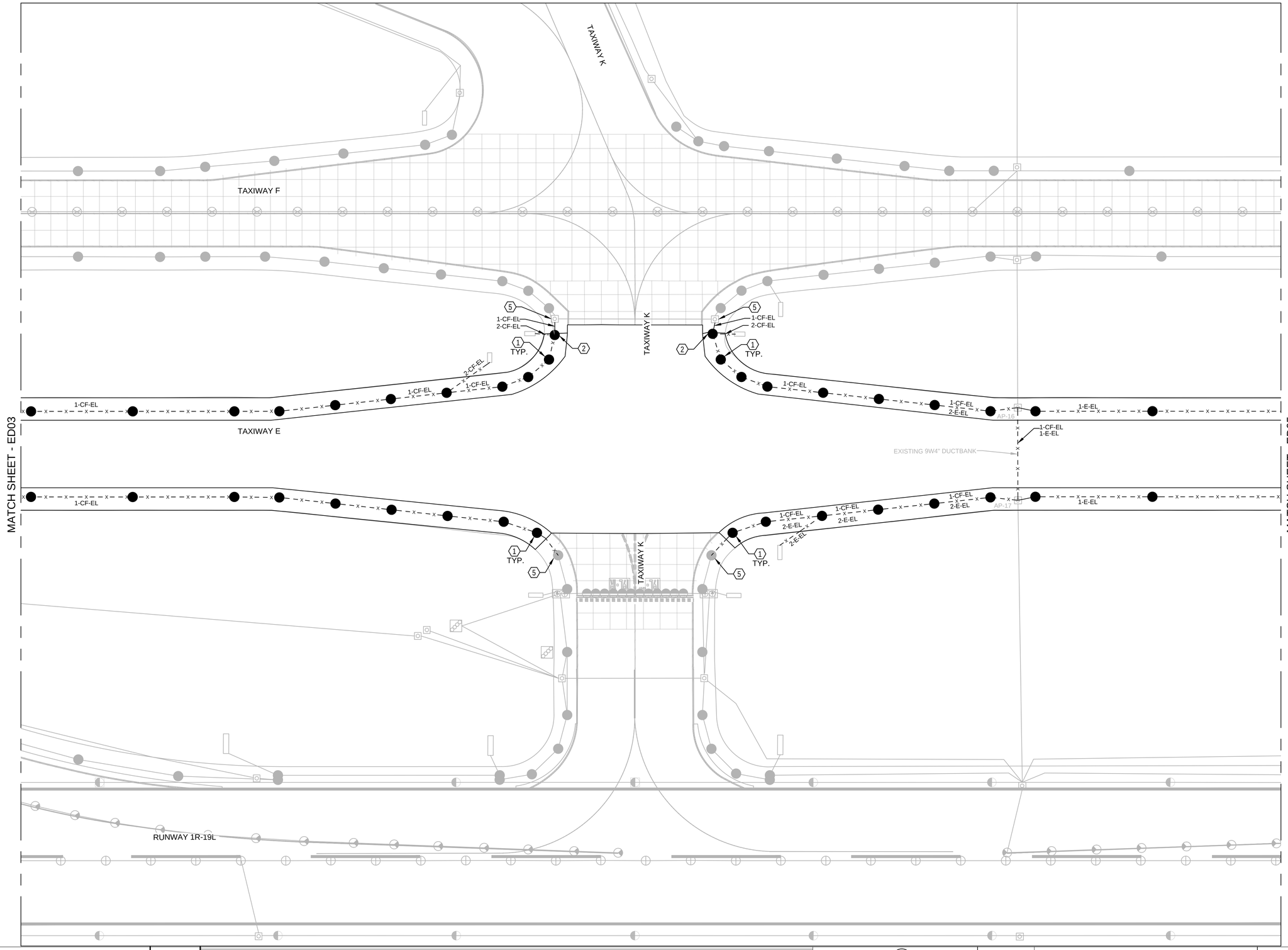
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

ELECTRICAL DEMOLITION PLAN

Design: WRM	CAD File:62230566ED01.dwg	Aviation Project No. 62230566
Drawn: CMM	Dwg Date: 2/9/23	Dwg. No. ED03 87 of 104

CAD File: 62230566ED01.dwg



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STATE OF MISSOURI
2/9/23
WALTER R MAY
NUMBER PE-2015000572
PROFESSIONAL ENGINEER

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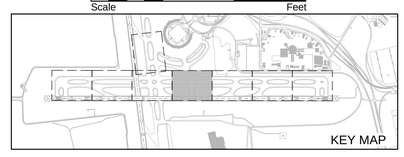

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT

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816.836.5050
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MISSOURI CERTIFICATE OF AUTHORITY #000239

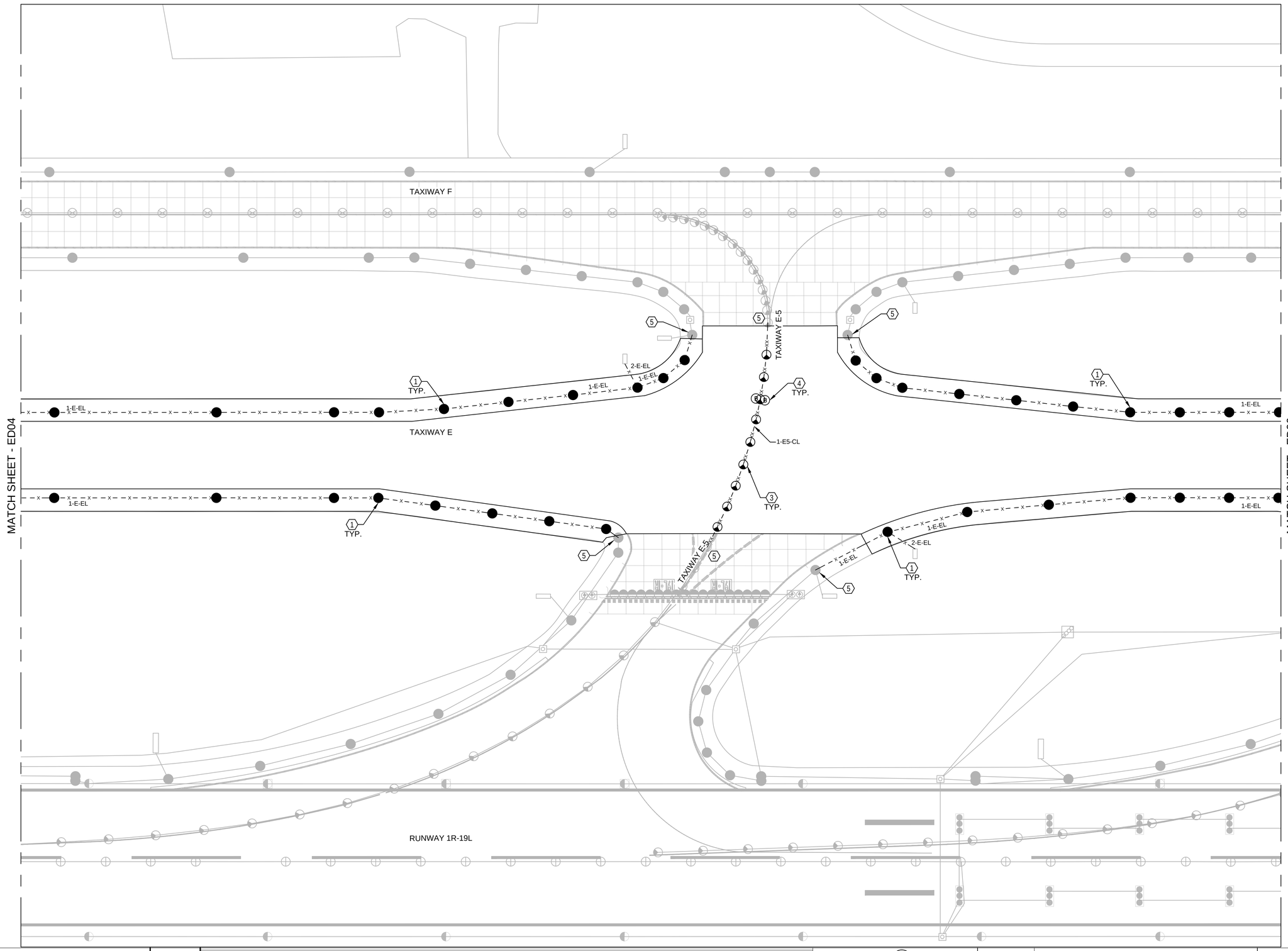
CITY OF FOUNTAINS
HEART OF THE NATION
KANSAS CITY
MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

ELECTRICAL DEMOLITION PLAN

Design: WRM	CAD File:62230566ED01.dwg	Aviation Project No. 62230566	
Drawn: CMM	Dwg Date: 2/9/23	Dwg. No. ED04	88 of 104

CAD File: 62230566ED01.dwg



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STATE OF MISSOURI 2/9/23 WALTER R. MAY NUMBER PE-2015000572 PROFESSIONAL ENGINEER

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Scale Feet

KEY MAP

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT
KCI

CUSTOM ENGINEERING
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1000 E EAST 10 HWY, SUITE 100
Independence, Missouri 64055
816.373.9000
www.CUSTOMUSA.COM
MISSOURI CERTIFICATE OF AUTHORITY #000239

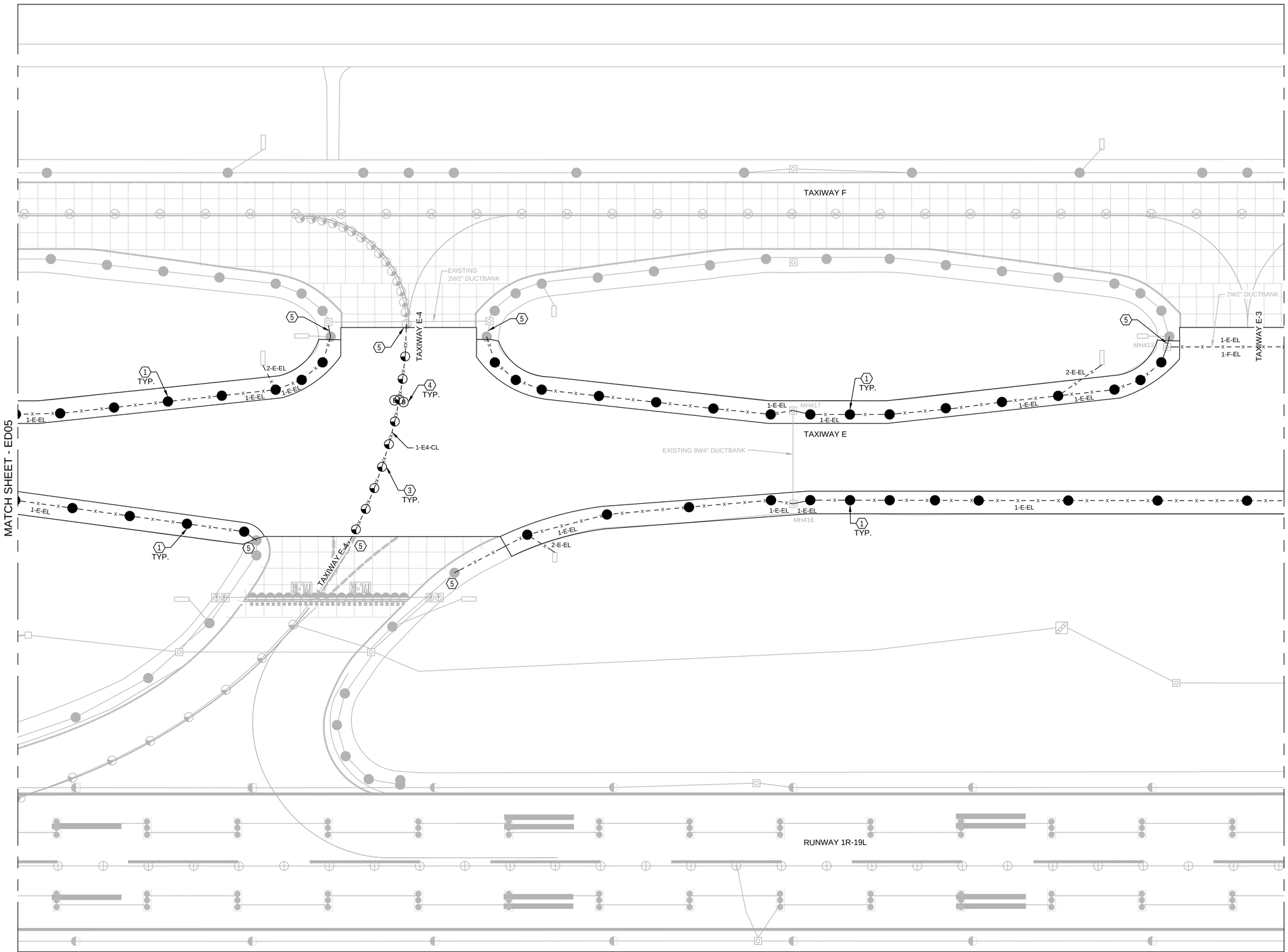
CITY OF FOUNTAINS
HEART OF THE NATION
KANSAS CITY
MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

ELECTRICAL DEMOLITION PLAN

Design: WRM	CAD File:62230566ED01.dwg	Aviation Project No. 62230566	
Drawn: CMM	Dwg Date: 2/9/23	Dwg. No. ED05	89 of 104

CAD File: 62230566ED01.dwg



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No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT
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KANSAS CITY, MISSOURI 64133
816.350.1472
MISSOURI CERTIFICATE OF AUTHORITY #000239

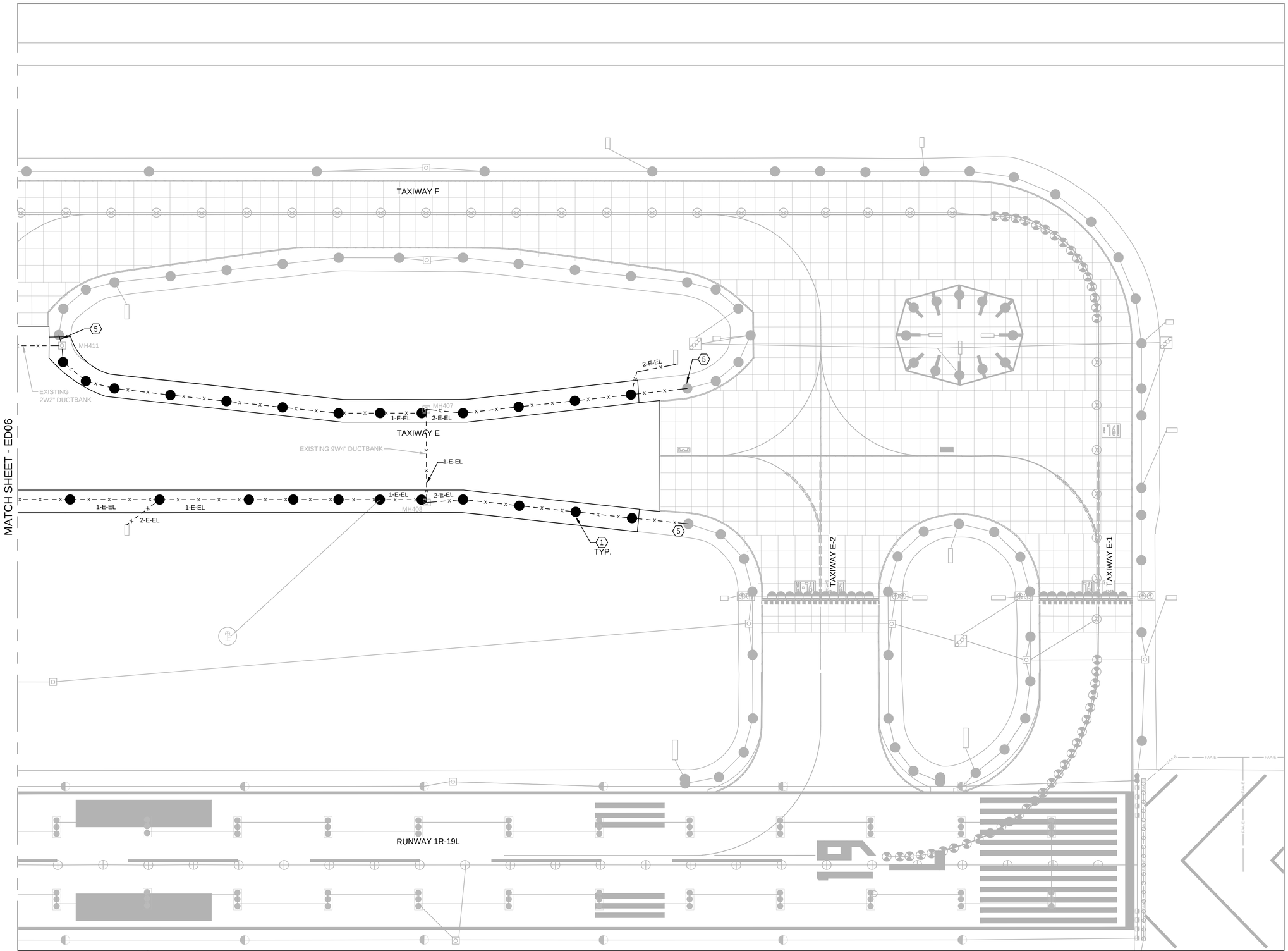
CITY OF FOUNTAINS
HEART OF THE NATION
KANSAS CITY
MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

ELECTRICAL DEMOLITION PLAN

Design: WRM	CAD File:62230566ED01.dwg	Aviation Project No. 62230566
Drawn: CMM	Dwg Date: 2/9/23	Dwg. No. ED06 90 of 104

CAD File: 62230566ED01.dwg



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STATE OF MISSOURI 2/9/23 WALTER R. MAY NUMBER PE-2010000572 PROFESSIONAL ENGINEER

50 0 50 100
Scale Feet

KEY MAP

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT

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12750 EAST 40 HIGHWAY
INDEPENDENCE, MISSOURI 64055
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MISSOURI CERTIFICATE OF AUTHORITY #000239

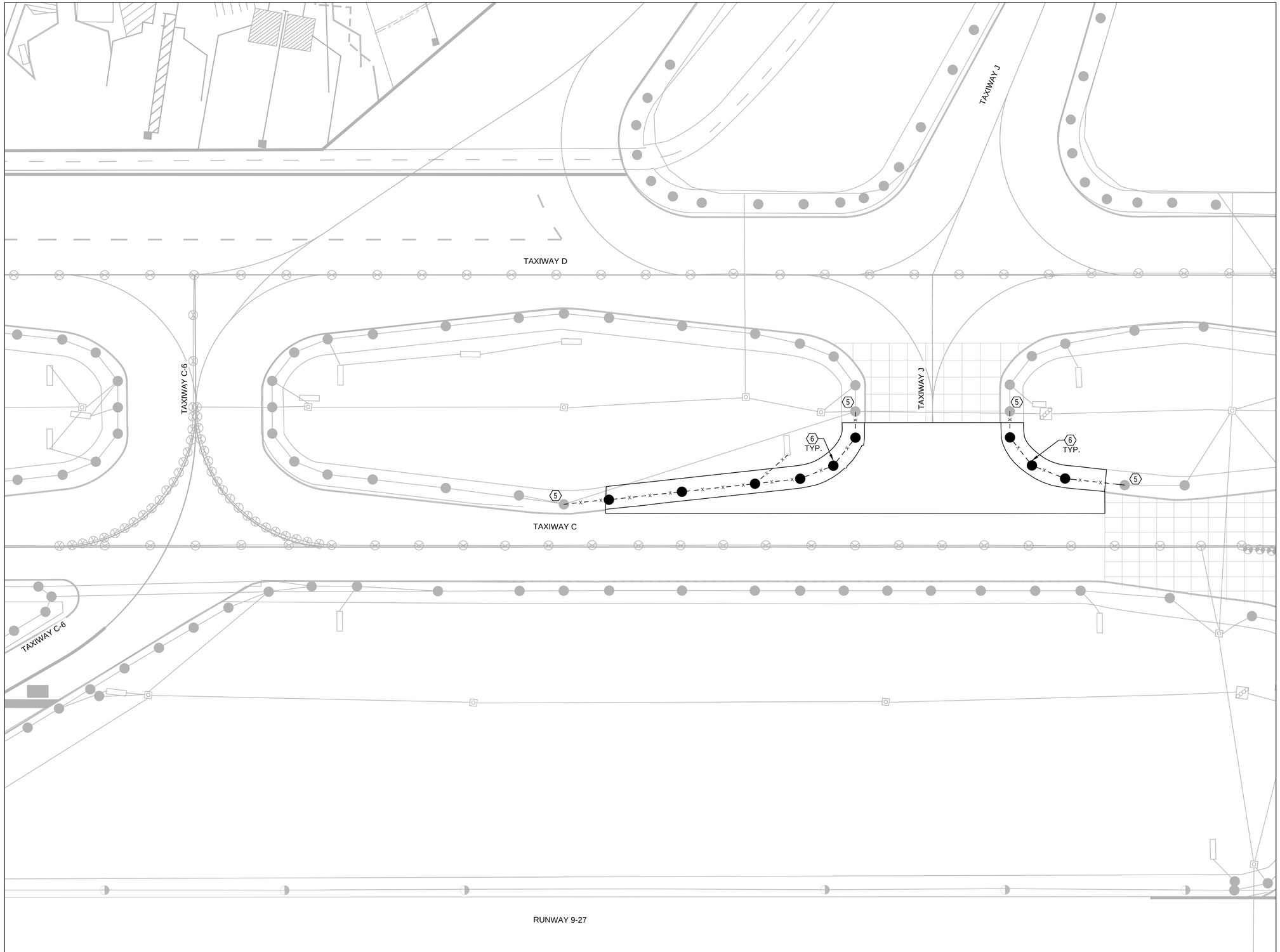
CITY OF FOUNTAINS
HEART OF THE NATION
KANSAS CITY
MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

ELECTRICAL DEMOLITION PLAN

Design: WRM	CAD File:62230566ED01.dwg	Aviation Project No.	62230566
Drawn: CMM	Dwg Date: 2/9/23	Dwg. No.	ED07 91 of 104

CAD File: 62230566ED01.dwg



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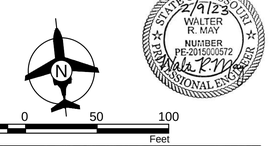

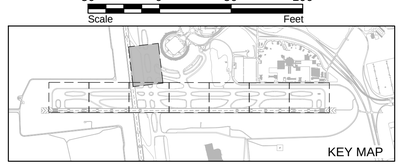

STATE OF MISSOURI
2/9/23
WALTER R. MAY
NUMBER PE-2015000572
PROFESSIONAL ENGINEER

No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT

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MISSOURI CERTIFICATE OF AUTHORITY #000239

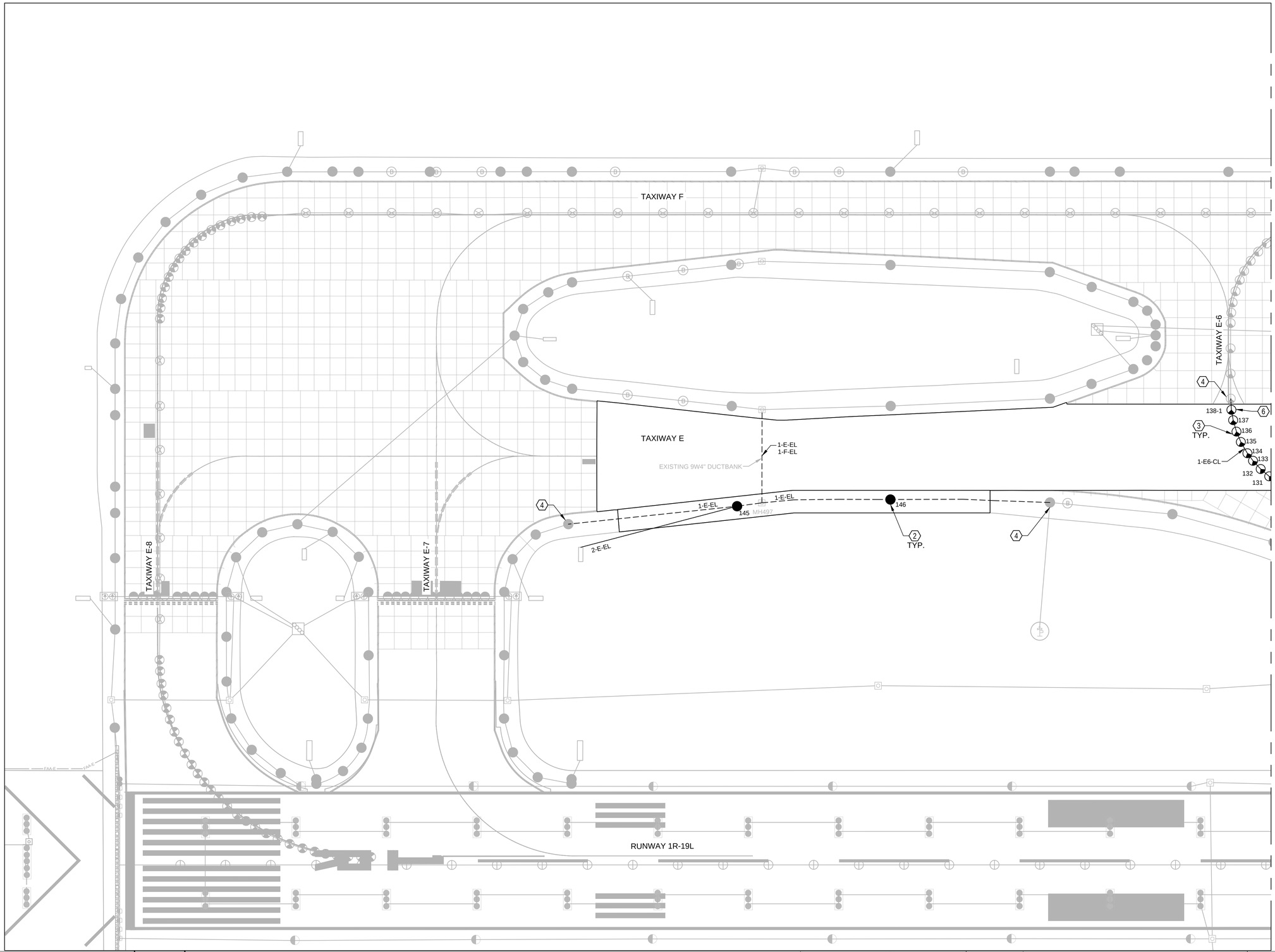
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

ELECTRICAL DEMOLITION PLAN

Design: WRM	CAD File:62230566ED01.dwg	Aviation Project No. 62230566
Drawn: CMM	Dwg Date: 2/9/23	Dwg. No. ED08 92 of 104

CAD File: 62230566ED01.dwg



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KEYED NOTES

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2. REINSTALL EXISTING ELEVATED TAXIWAY EDGE LIGHT FIXTURE ON NEW BASE CAN. ADJUST ELEVATION AND ALIGN LEVEL AS REQUIRED. REINSTALL TRANSFORMER AND NEW CABLES AS TO MAINTAIN CIRCUITS.
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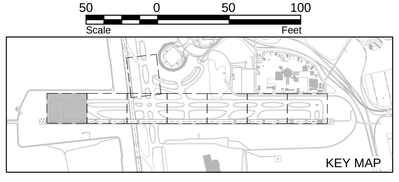


No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT

KCI

CUSTOM ENGINEERING

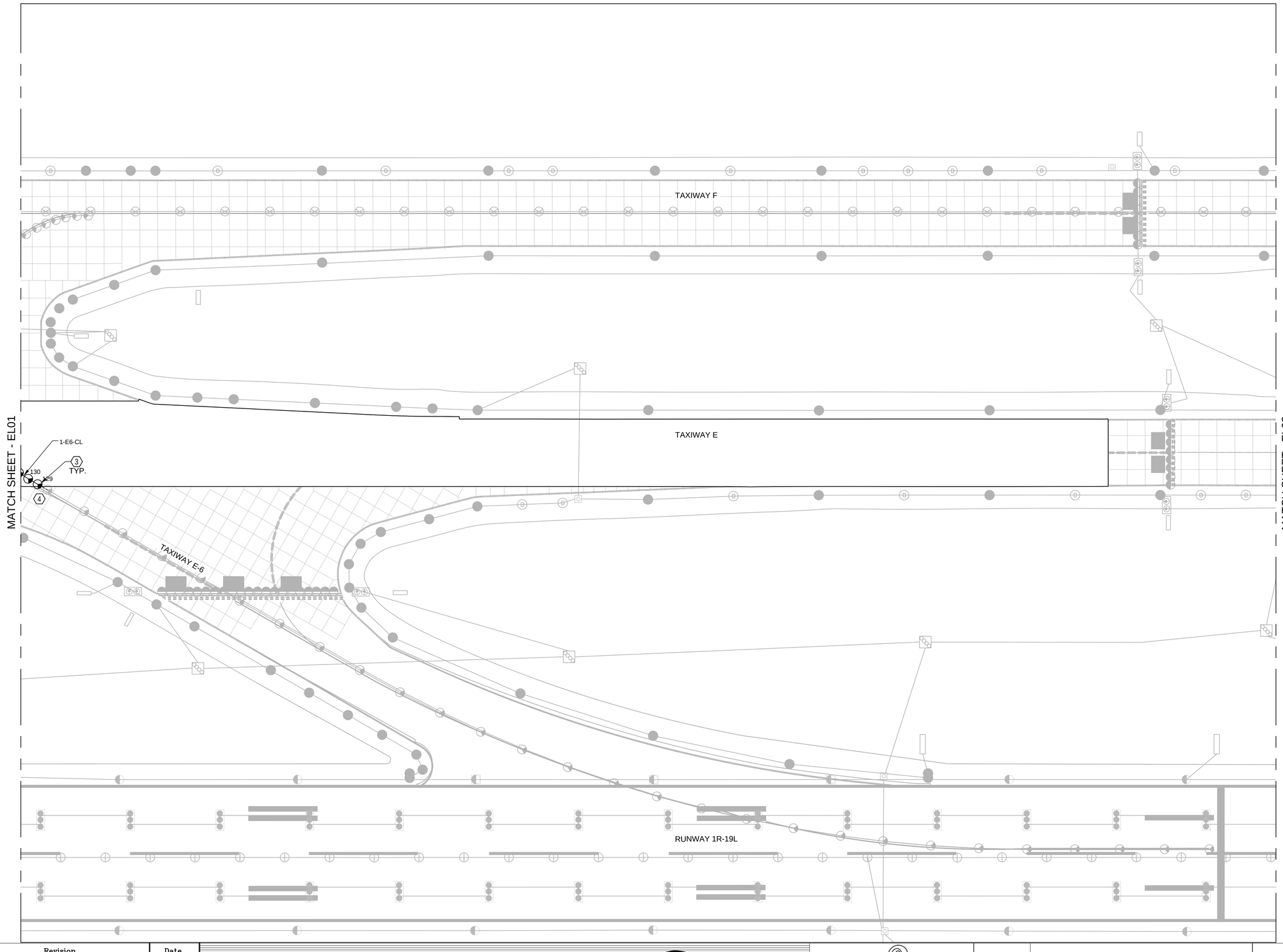
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

ELECTRICAL LIGHTING PLAN

Design: WRM	CAD File:62230566EL01.dwg	Aviation Project No. 62230566
Drawn: CMM	Dwg Date: 2/9/23	Dwg. No. EL01 93 of 104

CAD File: 62230566EL01.dwg



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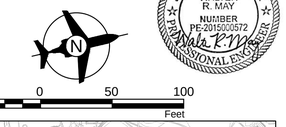

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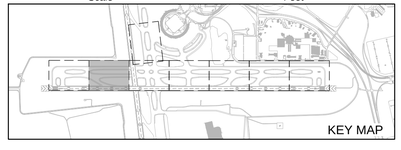

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CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT

KCI

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MECHANICAL & ELECTRICAL ENGINEERING
1100 EAST 45 HIGHWAY
MINNEAPOLIS, MINNESOTA
R&D 862-1473
www.CUSTOMENGIN.COM
MISSOURI CERTIFICATE OF AUTHORITY #000239

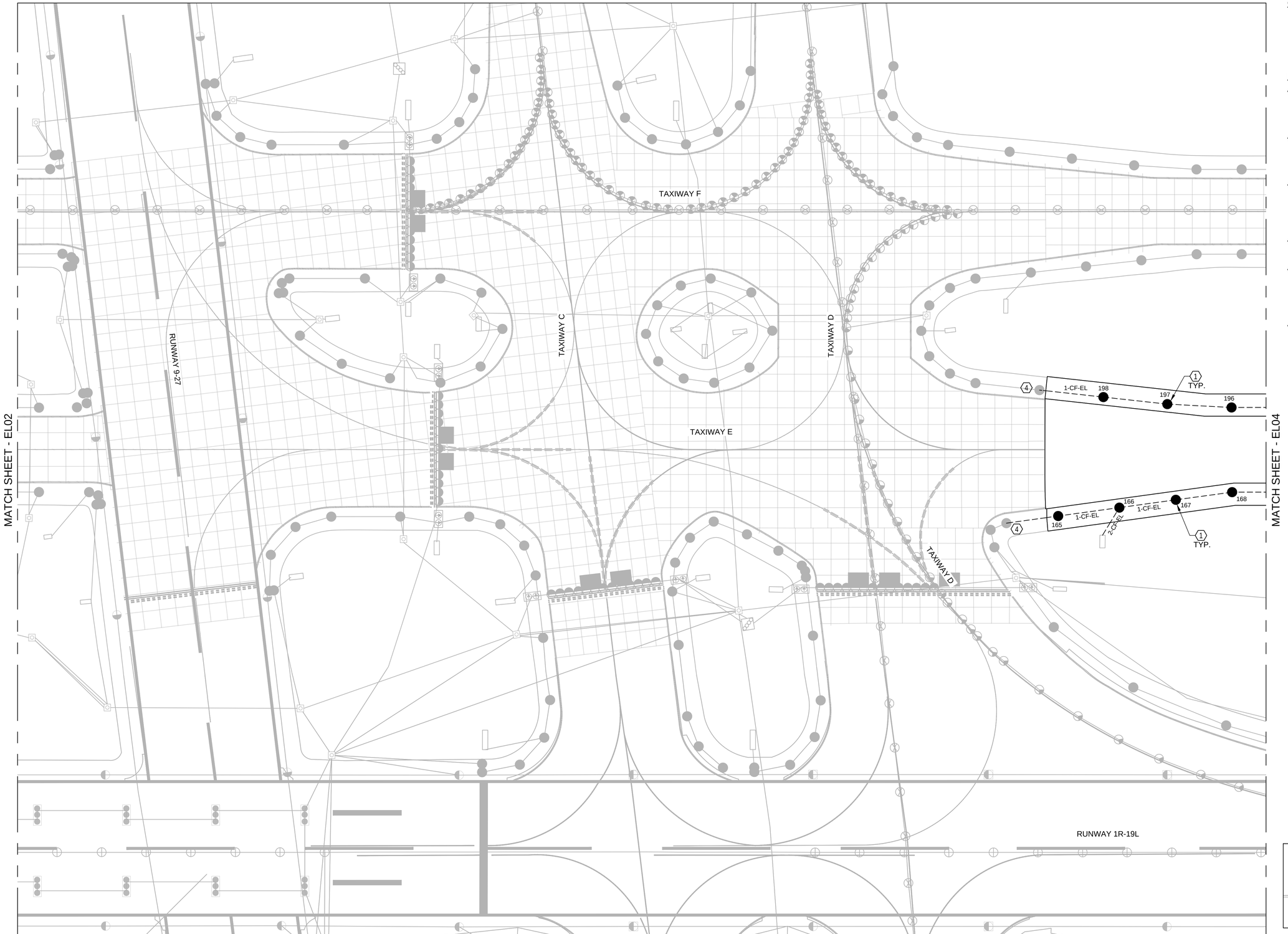
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

ELECTRICAL LIGHTING PLAN

Design: WRM	CAD File:62230566EL01.dwg	Aviation Project No. 62230566
Drawn: CMM	Dwg Date: 2/9/23	Dwg. No. EL02 94 of 104

CAD File: 62230566EL01.dwg



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STATE OF MISSOURI
2/9/23
WALTER R. MAY
NUMBER PE-2015000572
PROFESSIONAL ENGINEER

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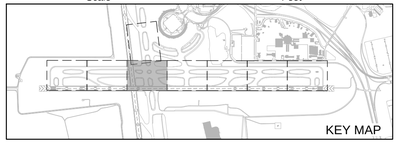

KEY MAP

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CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT

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MECHANICAL & ELECTRICAL ENGINEERING
1370 EAST 45 HIGHWAY
SUITE 100
KANSAS CITY MISSOURI
MISSOURI CERTIFICATE OF AUTHORITY #000239

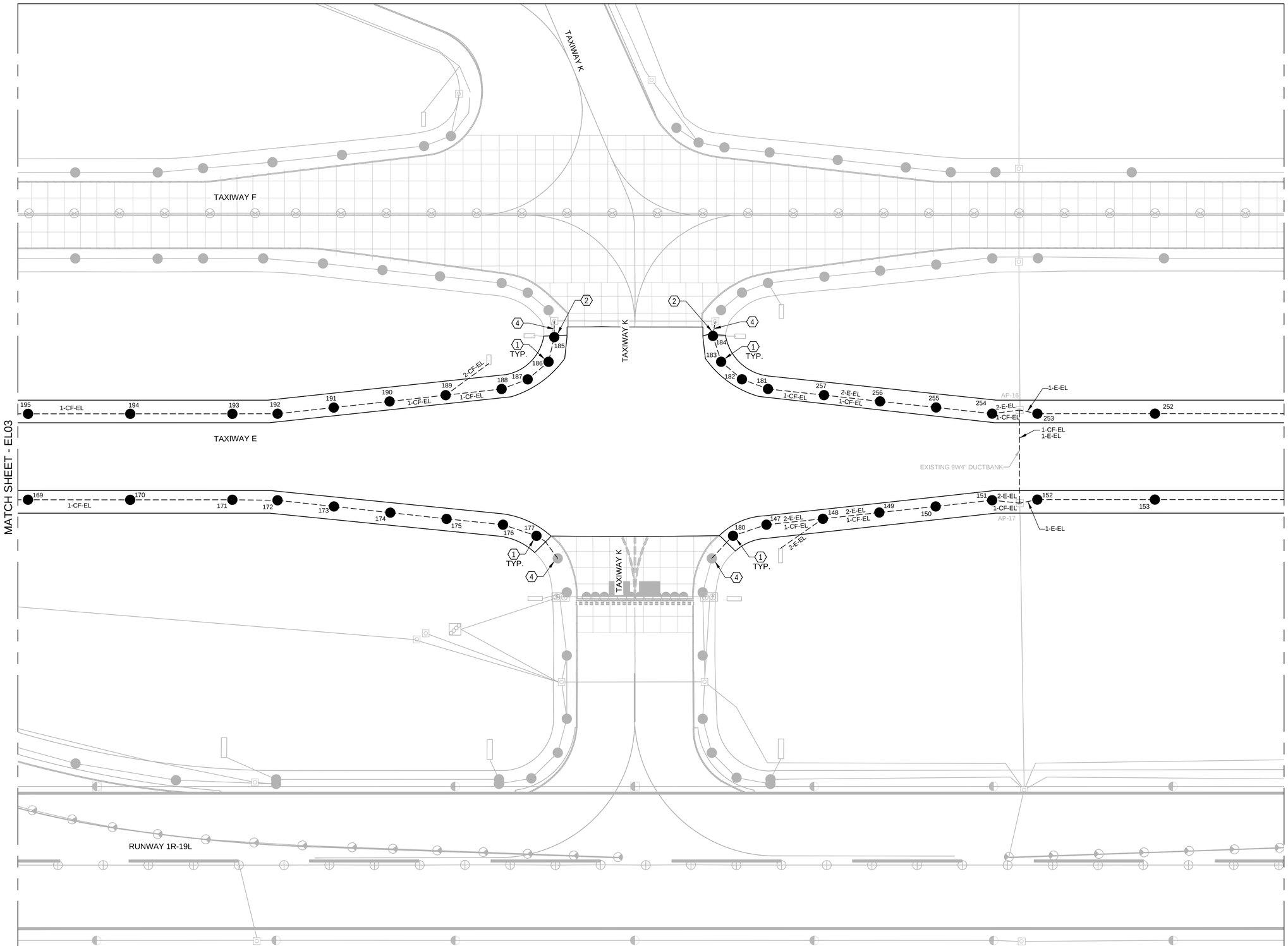
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

ELECTRICAL LIGHTING PLAN

Design: WRM	CAD File:62230566EL01.dwg	Aviation Project No. 62230566
Drawn: CMM	Dwg Date: 2/9/23	Dwg. No. EL03 95 of 104

CAD File: 62230566EL01.dwg



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STATE OF MISSOURI
2/9/23
WALTER R. MAY
NUMBER PE-2015000572
PROFESSIONAL ENGINEER

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KEY MAP

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CITY OF KANSAS CITY, MISSOURI
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CUSTOM ENGINEERING
RECYCLING & EAST STATES ENGINEERING
1000 NW Business Parkway
Independence, Missouri 64086
816.478.8118
www.CUSTOMUSA.COM
MISSOURI CERTIFICATE OF AUTHORITY #000239

CITY OF FOUNTAINS
HEART OF THE NATION
KANSAS CITY
MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

ELECTRICAL LIGHTING PLAN

Design: WRM	CAD File:62230566EL01.dwg	Aviation Project No.	62230566
Drawn: CMM	Dwg Date: 2/9/23	Dwg. No.	EL04 96 of 104

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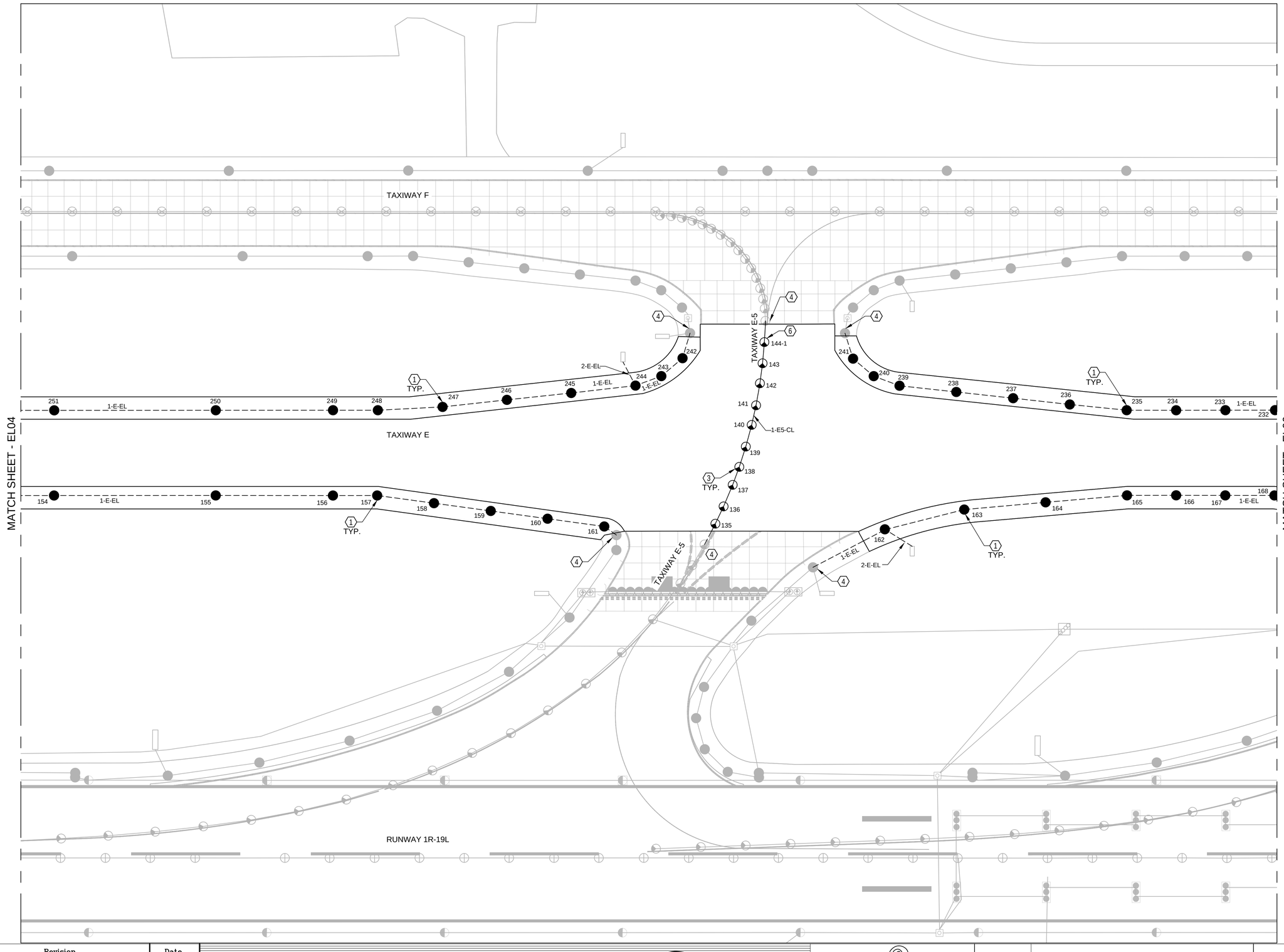

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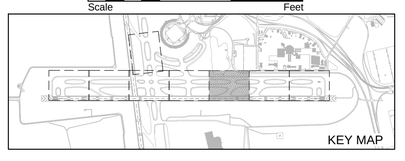

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MECHANICAL & ELECTRICAL ENGINEERING
1270 EAST 40 HIGHWAY
BLUE SPRINGS, MISSOURI 64015
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MISSOURI CERTIFICATE OF AUTHORITY #000299

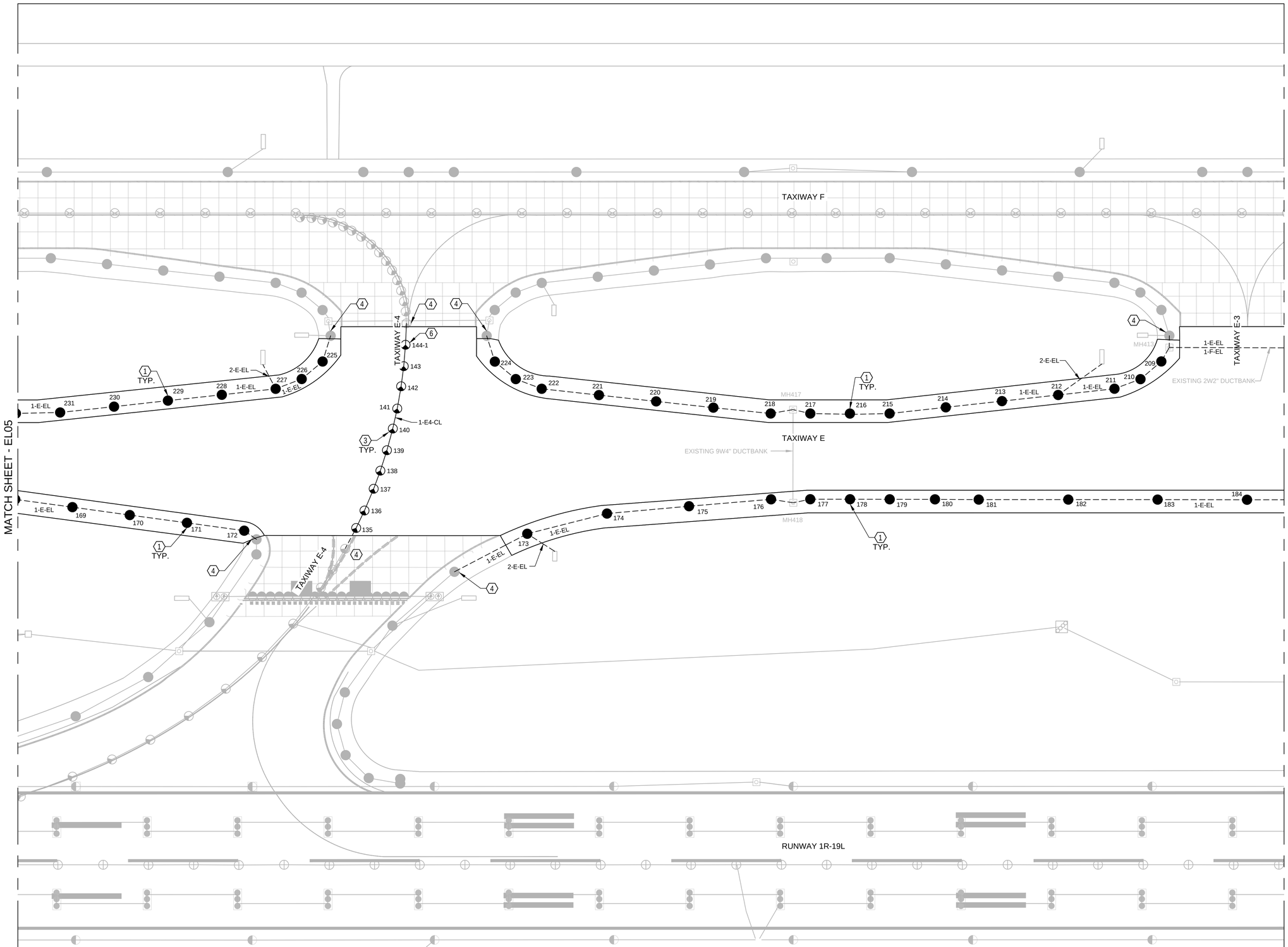
CITY OF FOUNTAINS
HEART OF THE NATION
KANSAS CITY
MISSOURI

TAXIWAY E AND TAXIWAY J
REHABILITATION

ELECTRICAL LIGHTING PLAN

Design: WRM	CAD File:62230566EL01.dwg	Aviation Project No.	62230566
Drawn: CMM	Dwg Date: 2/9/23	Dwg. No.	EL05 97 of 104

CAD File: 62230566EL01.dwg



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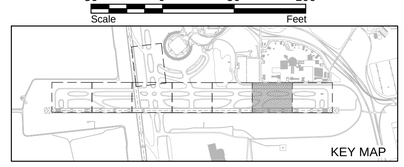

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CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT

KCI

CUSTOM ENGINEERING

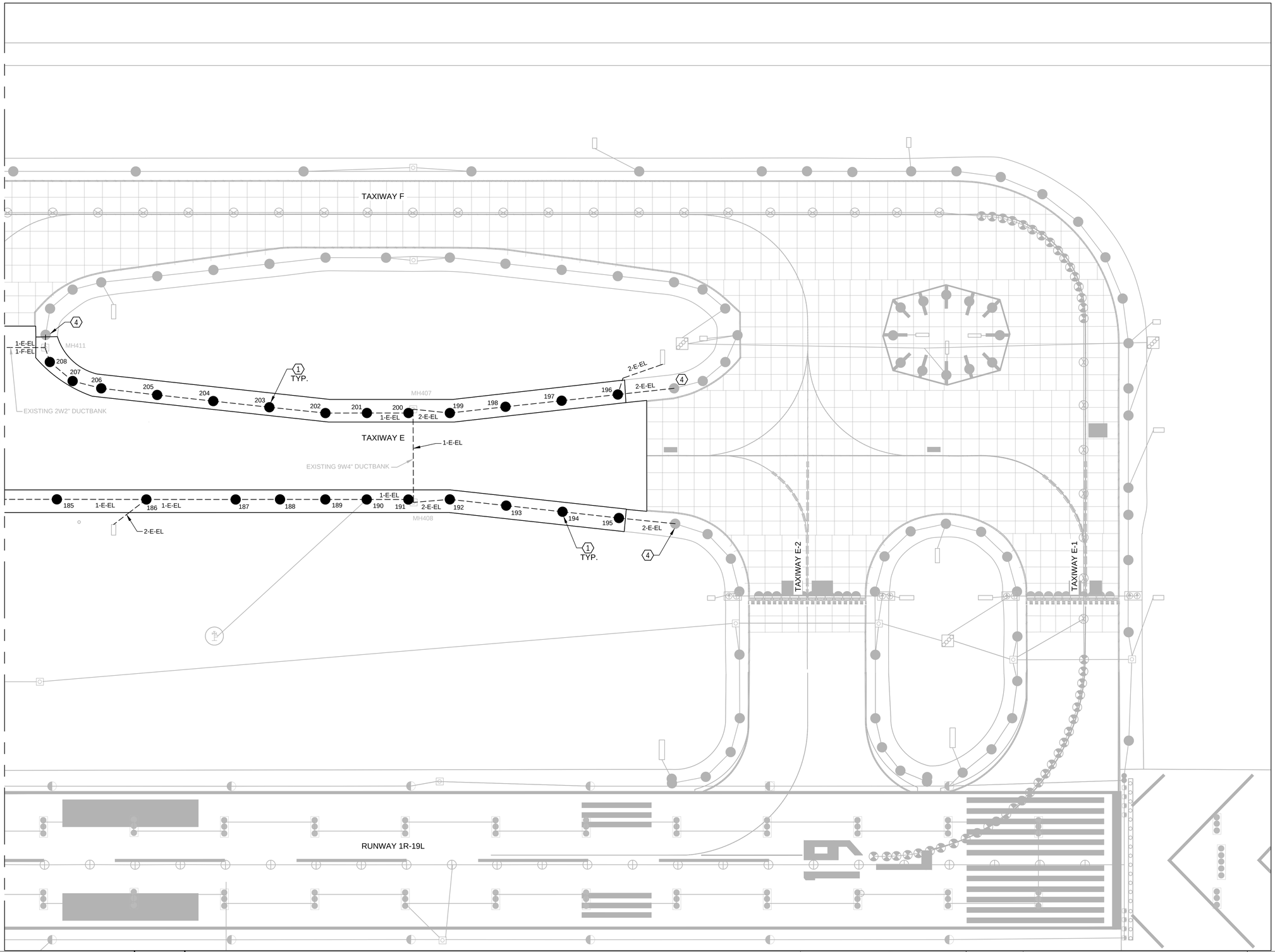
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

ELECTRICAL LIGHTING PLAN

Design: WRM	CAD File:62230566EL01.dwg	Aviation Project No. 62230566
Drawn: CMM	Dwg Date: 2/9/23	Dwg. No. EL06 98 of 104

CAD File: 62230566EL01.dwg



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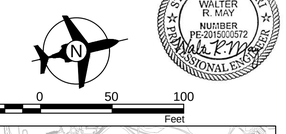



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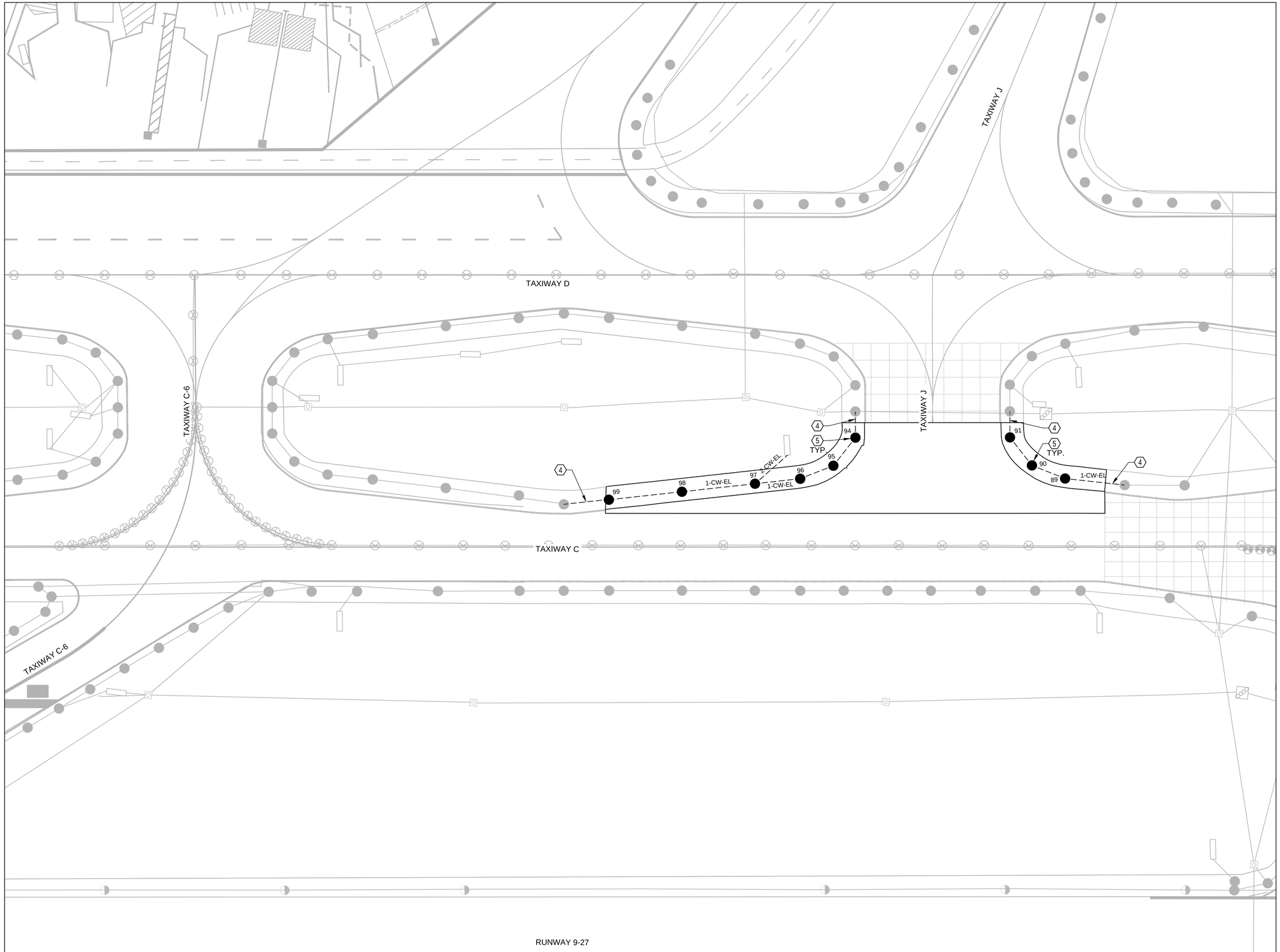

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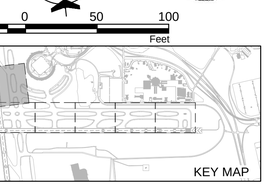

KEY MAP

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AVIATION DEPARTMENT

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MECHANICAL & ELECTRICAL ENGINEERING
1776 EAST 6TH STREET
INDEPENDENCE, MISSOURI 64055
816.252.1473
www.CUSTOMENGINEERING.COM
MISSOURI CERTIFICATE OF AUTHORITY #000239

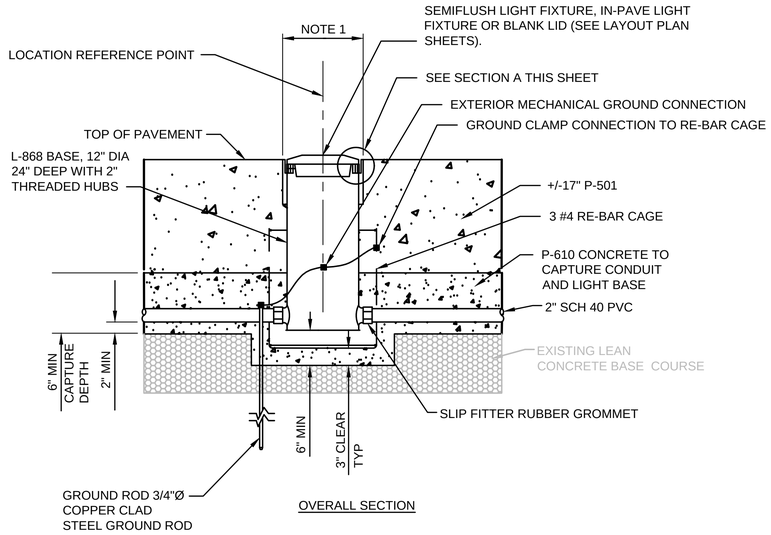
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

ELECTRICAL LIGHTING PLAN

Design: WRM	CAD File:62230566EL01.dwg	Aviation Project No. 62230566
Drawn: CMM	Dwg Date: 2/9/23	Dwg. No. EL08 100 of 104

CAD File: 62230566EL01.dwg

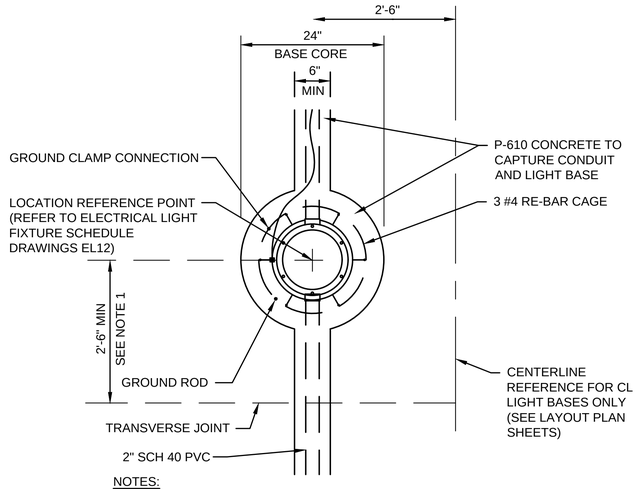


OVERALL SECTION

NOTES:

1. CORE EXTENSION OUTSIDE DIAMETER + 1" MAXIMUM IN CONCRETE PAVEMENT.
2. THE L-868 BASE CAN SHALL BE INSTALLED AT THE APPROPRIATE ELEVATION TO ALLOW FOR THE CONCRETE RING 1/8" TO 3/4" BELOW THE TOP OF PAVEMENT, AS MEASURED FROM THE TOP OF THE CONCRETE RING.
3. CONTRACTOR SHALL USE SPACER RINGS BETWEEN THE L-868 BASE CAN AND FIXTURE TO ADJUST THE TOP OF BASE BAND RING TO 1/8" BELOW THE TOP OF PAVEMENT (+0-1/16") MEASURED ON THE LOW SIDE OF PAVEMENT. CONTRACTOR SHALL PROVIDE ENOUGH SPACER RINGS WHEN ORDERING LIGHT BASES (AVAILABLE FROM 1/16" TO 1 15/16" INCREMENTS) TO ADJUST TO ALL OF THE LIGHT BASES IN A TIMELY MANNER.
4. CONTRACTOR SHALL NOT USE MORE THAN 3 SPACER RINGS ON ANY ONE LIGHT BASE INSTALLATION.
5. CONTRACTOR SHALL PROVIDE STAINLESS STEEL T304 BOLTS THREADED FULL LENGTH AS REQUIRED TO FASTEN THE FIXTURES TO THE LIGHT BASES INCLUDING REQUIRED SPACER RINGS WITH BOLT EXTENDING A MINIMUM 1/8" BELOW BOTTOM FLANGE AND NOT TO EXCEED 1" BELOW BOTTOM FLANGE AFTER FINAL TORQUE HAS BEEN APPLIED.
6. SPACER RINGS SHALL BE VEGA #5411 SERIES OR APPROVED EQUIVALENT.
7. CONTRACTOR SHALL TRENCH AND OR CORE INTO THE EXISTING LEAN CONCRETE BASE COURSE FOR THE NEW LOCATIONS OF CENTERLINE LIGHT CAN BASES AND CONDUIT, AS REQUIRED, SHALL BE SUBSIDIARY TO INSTALLATION PER L-110, AIRPORT ELECTRICAL DUCT BANKS AND CONDUIT L-125, INSTALLATION OF AIRPORT LIGHTING SYSTEMS.
8. CONTRACTOR SHALL REPAIR THE EXISTING CONDUIT TRENCH AND/OR CORES IN THE EXISTING LEAN CONCRETE BASE COURSE PER P-101, PREPARATION/REMOVAL OF EXISTING PAVEMENTS.

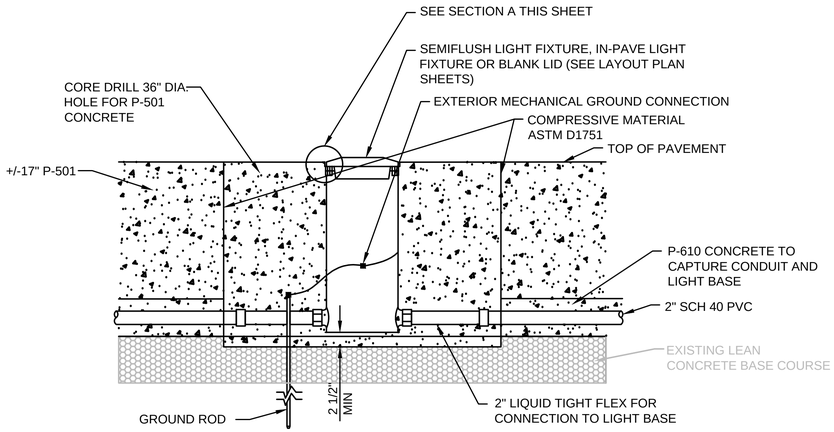
L-868 LIGHT BASE MOUNTING IN NEW RIGID PAVEMENT SECTION — 1 / EL09



NOTES:

1. ONE 3/ 4" X 10" GROUND ROD SHALL BE INSTALLED AT EACH LIGHT BASE AND CONNECTED TO THE LIGHT BASE AND REBAR CAGE WITH A #6 SOLID AWG GROUND. IF REQUIRED GROUND RESISTANCE IS NOT ACHIEVED, ADD ADDITIONAL GROUND RODS.
2. REFER TO GENERAL SEMI-FLUSH FIXTURE NOTES THIS SHEET.

L-868 LIGHT BASE MOUNTING IN NEW RIGID PAVEMENT — 2 / EL09

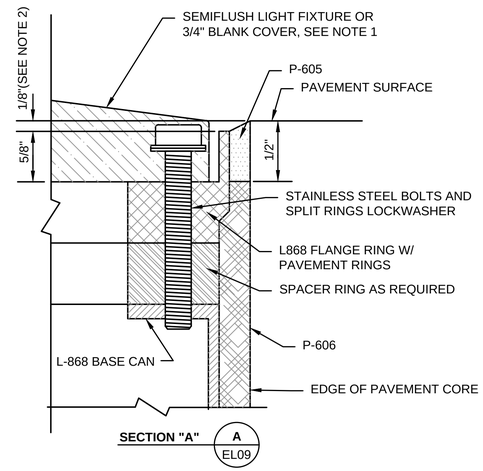


ELEVATION

L-868 LIGHT BASE MOUNTING IN NEW RIGID PAVEMENT — 3 / EL09

GENERAL SEMI-FLUSH FIXTURE NOTES:

1. THE SPACER RINGS ARE DESIGNED AS A NOMINAL 0.75" THICKNESS (ONE 1/2" SPACER RING WITH CONCRETE RING AND ONE 1/4" SPACER RING). THE SPACER RINGS MAY BE REQUIRED TO BE THINNER OR THICKER DEPENDING ON BASE CAN INSTALLATION AND PAVING TECHNIQUES. THE CONTRACTOR SHALL BE RESPONSIBLE TO MEASURE AND DETERMINE THE REQUIRED THICKNESS OF EACH INDIVIDUAL SPACER RING, TOP CAN SECTION OR BASE CAN EXTENSION REQUIRED TO PUT THE AIRFIELD LIGHTING FIXTURE AT THE CORRECT ELEVATION, AZIMUTH AND ROTATION PER FAA ADVISORY CIRCULARS, LATEST EDITIONS. THE CONTRACTOR'S BID PRICE SHALL INCLUDE FURNISHING AND INSTALLING ALL SPACER RINGS, TOP CAN SECTIONS AND BASE CAN EXTENSIONS REQUIRED.
2. THE P-606 SEALER SHALL FILL THE VOID TO WITHIN 0.125" OF THE TOP EDGE OF THE CONCRETE RING AT THE LOWEST POINT OF THE CONCRETE RING. ANY OTHER POURS SHALL BE IMMEDIATELY AND THOROUGHLY CLEANED TO THE SATISFACTION OF THE OWNER AND ENGINEER, AND REPOURED BY AND AT THE CONTRACTOR'S EXPENSE.
3. ALL INSTALLATION TECHNIQUES , METHODS, MATERIALS, ETC. SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO THE START OF WORK.
4. THE FINISHED PAVEMENT SURFACE SHALL BE PROTECTED FROM FOREIGN SUBSTANCES WHICH COULD CAUSE STAINING, I.E. OIL, P-606, ETC. THE CONTRACTOR SHALL IMMEDIATELY CLEAN ALL SPILLS AND CORRECT/CLEAN ANY STAINED SURFACES AT THE CONTRACTORS EXPENSE.
5. ALL EXISTING BOLT HOLES SHALL BE TAPPED BEFORE INSTALLING NEW BOLTS. NO EXISTING BOLTS AND WASHERS ARE TO BE REUSED. THE FIXTURE MOUNTING BOLTS SHALL EXTEND THRU THE BASE CAN CONCRETE RING INTO THE BASE CAN OF A MIN. OF 0.5". THE BOLTS SHALL HAVE ENOUGH THREAD LENGTH SO THEY DO NOT SHOULDER OUT BEFORE THE FIXTURE IS SECURELY TIGHTENED.
6. AT LOCATIONS WHERE EXISTING BASE CANS ARE INSTALLED WITH BLANK COVERS IN LIEU OF FIXTURES, ALL INSTALLATIONS METHODS, MATERIALS, NOTES, PAY ITEMS, ETC. THAT APPLY FOR REMOVAL AND INSTALLATION OF FIXTURES SHALL BE UTILIZED FOR BLANK COVERS.
7. NEW FIXTURE ID MARKERS SHALL BE INSTALLED AT THE SAME LOCATIONS AS EXISTING ID MARKERS NOTED IN CONTRACTORS SURVEY PERFORMED BEFORE START OF PAVEMENT REMOVAL.
8. REPAIR OF EXISTING PAVEMENT CUT FOR THE INSTALLATION OF ELECTRICAL ITEMS SHALL BE IN ACCORDANCE WITH THE CIVIL PLANS, DETAILS AND SPECIFICATIONS, AND SHALL BE CONSIDERED INCIDENTAL TO THE ELECTRICAL PAY ITEM IF NO SEPARATE PAY ITEM IS INCLUDED.
9. FLAT SPACER RINGS SHALL BE USED FOR HEIGHT ADJUSTMENTS FROM 1/16" TO 1-15/16" IN 1/16" INCREMENTS. A BASE CAN EXTENSION SHALL BE USED FOR HEIGHT ADJUSTMENTS OF 2" AND GREATER. A MAXIMUM OF 3 SPACERS MAY BE USED BETWEEN BOLTED CAN EXTENSIONS, OR THE BASE CAN AND FIXTURE.
10. REFER TO CIVIL DRAWINGS FOR PAVING DETAILS, ETC. CIVIL DATA SHOWN ON ELECTRICAL DRAWINGS FOR REFERENCE ONLY.
11. IF A LIGHT CAN IS DAMAGED BY CONSTRUCTION ACTIVITIES, THE PAVEMENT AROUND THE LIGHT CAN AND THE LIGHT SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.
12. THE LIGHTING FIXTURE MUST BE LEVEL, AND THE TOP OF THE FIXTURE EDGE MUST BE LEVEL WITH THE PAVEMENT TOP.
13. MEASUREMENT SHALL BE PERFORMED ON THE DOWN SLOPE SIDE OF THE FIXTURE.



SECTION "A" — A / EL09

NOTES:

1. TOP OF LIGHT FIXTURE SHALL BE INSTALLED TO TOP OF OR 11/16" BELOW PAVEMENT SURFACE, ON THE LOW SIDE OF PAVEMENT.
2. DIMENSIONS ARE TYPICAL. CONTRACTOR SHALL VERIFY DIMENSION BASED ON ACTUAL MATERIAL PROVIDED.
3. THE IN-PAVEMENT LIGHTING INSTALLER IS RESPONSIBLE FOR COORDINATING WITH THE PAVING CONTRACTOR TO ENSURE LIGHTS ARE VISIBLE ONCE COMPLETED.

STATE OF MISSOURI 2/9/23 WALTER R. MAY NUMBER PE-2015/20572 PROFESSIONAL ENGINEER

No.	Revision	Date

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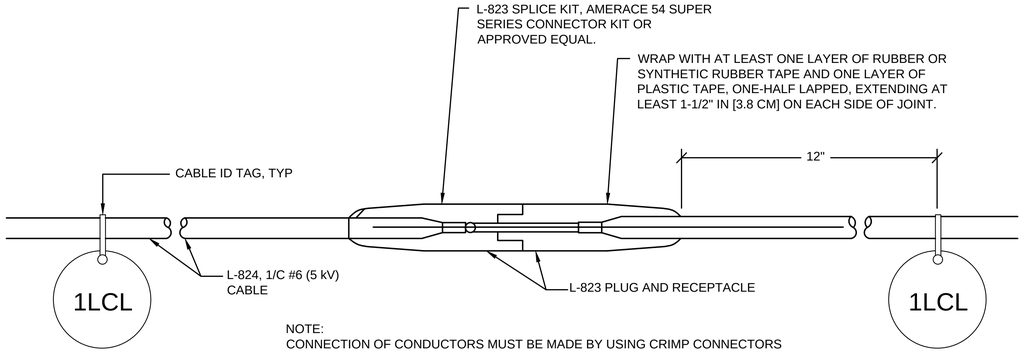
CITY OF FOUNTAINS HEART OF THE NATION KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

ELECTRICAL LIGHTING DETAILS

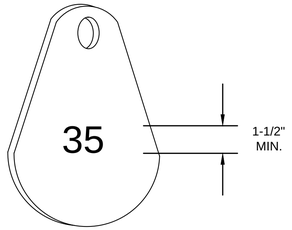
Design: WRM	CAD File: 62230566ELD.dwg	Aviation Project No. 62230566	
Drawn: CMM	Dwg Date: 2/9/23	Dwg. No. EL09	101 of 104

CAD File: 62230566ELD.dwg



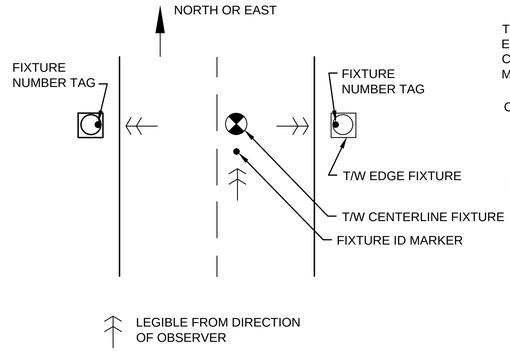
NOTE:
CONNECTION OF CONDUCTORS MUST BE MADE BY USING CRIMP CONNECTORS AND A CRIMPING TOOL APPROVED BY THE CONNECTOR/LUG MANUFACTURER. THE TOOL MUST PRODUCE A COMPLETE CRIMP BEFORE IT CAN BE REMOVED. THE CRIMPING TOOL USED MUST BE LISTED BY THE L-823 KIT MANUFACTURER. MAKE THE NUMBER AND TYPE OF CRIMPS PER KIT MANUFACTURER'S INSTRUCTIONS.

TYPICAL L-824 (5 kV) PRIMARY CABLE CONNECTION DETAIL — 1 / EL10
N.T.S

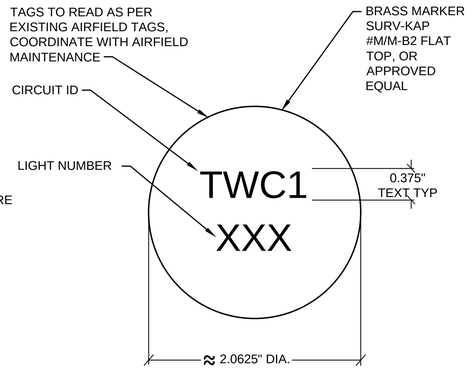


NOTE:
AFFIX NON-CORROSIVE TAG TO FIXTURE FACING TAXIWAY WITH SET SCREW, WIRE TIE, OR METAL BAND. NUMERALS SHALL BE ENGRAVED FOR PERMANENT READABILITY.

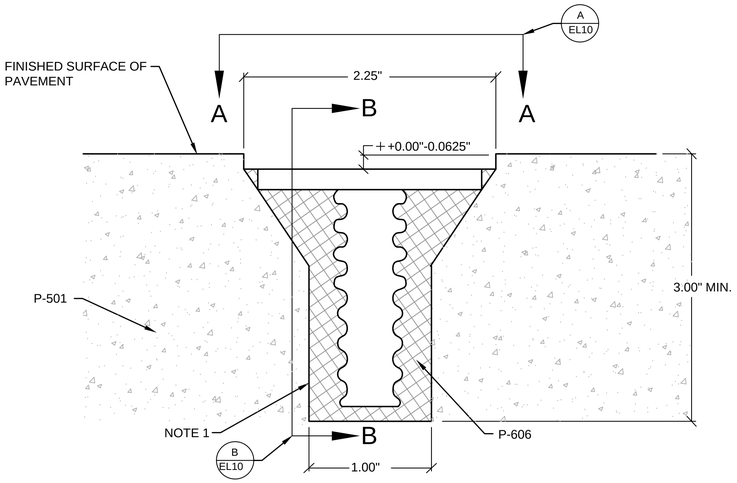
FIXTURE NUMBER TAG DETAIL — 2 / EL10
N.T.S



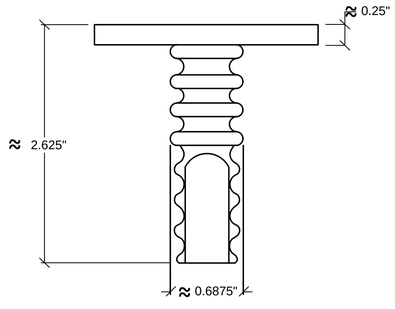
FIXTURE ID ORIENTATION — 3 / EL10
N.T.S.



SECTION A-A — A / EL10
N.T.S.



FIXTURE ID MARKER DETAIL FOR SEMI-FLUSH LIGHT FIXTURE, ETC. — 5 / EL10
N.T.S.



SECTION B-B — B / EL10
N.T.S.

ID MARKER NOTES:

1. CLEAN HOLE WITH WIRE BRUSH AND DRY COMPRESSED AIR IMMEDIATELY PRIOR TO PLACING THE P-606. THE P-606 FILL TUBE SHALL BE KEPT WITHIN 1/8" OF THE BOTTOM OF THE DRILLED HOLE DURING FILLING TO PREVENT AIR ENTRAPMENT. INSTALL MARKER AND ROTATE 1/4 TURN. VOLUME OF P-606 USED SHALL BE SUFFICIENT TO ALLOW A SMALL AMOUNT TO SQUEEZE OUT EVENLY AROUND THE PERIMETER OF THE MARKER TOP. ANY OVER OR UNDER POURS SHALL BE CORRECTED IMMEDIATELY.
2. INSTALLATION OF ID MARKERS AND STAMPING OF ID'S ARE INCIDENTAL TO FIXTURE PAY ITEM.
3. THE P-606 SHALL BE COMPATIBLE WITH THE TYPE OF PAVEMENT AND ENVIRONMENT IN WHICH IT IS BEING USED.

STATE OF MISSOURI
2/9/23
WALTER R. MAY
NUMBER PE-2015000572
PROFESSIONAL ENGINEER

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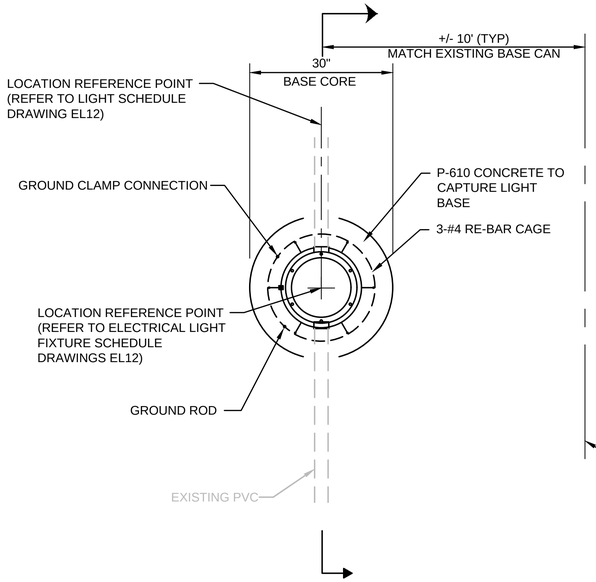
CITY OF FOUNTAINS HEART OF THE NATION
KANSAS CITY MISSOURI

TAXIWAY E AND TAXIWAY J REHABILITATION

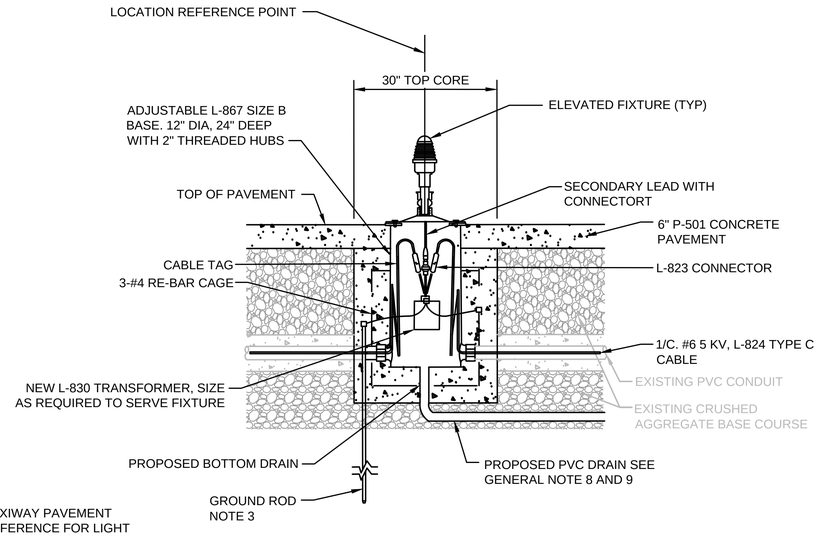
ELECTRICAL LIGHTING DETAILS

Design: WRM	CAD File: 62230566ELD.dwg	Aviation Project No. 62230566
Drawn: CMM	Dwg Date: 2/9/23	Dwg. No. EL10 102 of 104

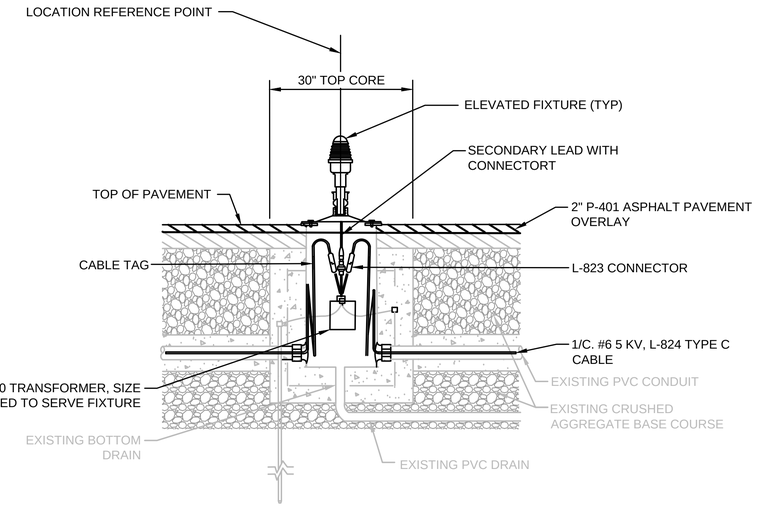
CAD File: 62230566ELD.dwg



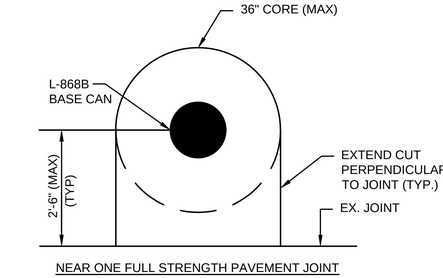
L-867 LIGHT BASE MOUNTING IN PROPOSED RIGID PAVEMENT — 1 / EL11



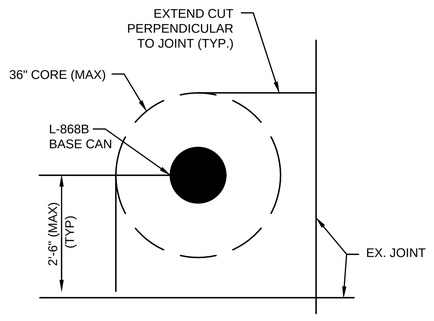
L-867 LIGHT BASE MOUNTING IN PROPOSED RIGID PAVEMENT — 2 / EL11



L-867 LIGHT BASE MOUNTING IN EXISTING FLEXIBLE PAVEMENT — 3 / EL11



NEAR ONE FULL STRENGTH PAVEMENT JOINT



NEAR TWO FULL STRENGTH PAVEMENT JOINT

CORE DRILLED IN-PAVEMENT LIGHT INSTALLATION — 4 / EL11

NOTE:

1. REFERENCE THE CJ SHEETS FOR THE FIXTURES THAT REQUIRE A CORE DRILLED IN-PAVEMENT LIGHT INSTALLATION BLOCK OUT. PAYMENT FOR INSTALLATION SHALL BE SUBSIDIARY TO THE LIGHT BASE AND FIXTURE INSTALLATION,

NOTES:

1. LIGHT BASES SHALL CONFORM TO FAA ADVISORY CIRCULAR 150/5345-42F, SPECIFICATION FOR AIRPORT LIGHT BASES AND TRANSFORMER HOUSINGS.
2. ORIENTATION AND NUMBER OF HUBS REQUIRED ON LIGHT BASES VARY. SEE LAYOUT PLAN SHEETS FOR DETAILS.
3. ONE 3/4" X 10' GROUND ROD SHALL BE INSTALLED AT EACH LIGHT BASE AND CONNECTED TO THE LIGHT BASE WITH A #6 SOLID AWG GROUND. IF REQUIRED GROUND RESISTANCE IS NOT ACHIEVED, ADD ADDITIONAL GROUND RODS.
4. ALL GROUND CONNECTIONS SHALL BE INSPECTED BY RPR PRIOR TO PLACEMENT OF CONCRETE.
5. CONTRACTOR SHALL SUBMIT METHOD OF INSTALLATION FOR APPROVAL THAT PROVIDES STEP-BY-STEP SEQUENCE OF OPERATIONS INCLUDING, BUT NOT LIMITED TO , CORING AND TRENCHING, LIGHT BASE, CONDUIT, COUNTERPOISE, GROUNDING, TIE-BAR CAGE AND CONCRETE PLACEMENT.
6. SEE CIVIL DRAWINGS FOR PAVEMENT DESIGN. CONTRACTOR SHALL COORDINATE CAN INSTALLATION WITH CIVIL DETAILS.
7. CONTRACTOR SHALL SLOPE 2" PVC DRAIN AT 1.5% TO OUTFALL ABOVE EXISTING UNDERDRAIN TRENCH. THE PROPOSED PVC DRAIN SHALL NOT TIE INTO THE EXISTING UNDERDRAIN.
8. INSTALL 2" PVC DRAIN PIPE ATTACHED TO BASE CAN BOTTOM DRAIN WHERE INDICATED ON THE GRADING AND DRAINAGE PLAN AS COORDINATED WITH THE CIVIL ENGINEER.
9. NEW FIXTURE ID MARKERS SHALL BE INSTALLED AT THE SAME LOCATIONS AS EXISTING ID MARKERS NOTED IN CONTRACTORS SURVEY PERFORMED BEFORE START OF PAVEMENT REMOVAL.

NOTES:

1. LIGHT BASES SHALL CONFORM TO FAA ADVISORY CIRCULAR 150/5345-42F, SPECIFICATION FOR AIRPORT LIGHT BASES AND TRANSFORMER HOUSINGS.
2. ORIENTATION AND NUMBER OF HUBS REQUIRED ON LIGHT BASES VARY. SEE LAYOUT PLAN SHEETS FOR DETAILS.
3. ALL GROUND CONNECTIONS SHALL BE INSPECTED BY RPR PRIOR TO PLACEMENT OF CONCRETE.
4. CONTRACTOR SHALL SUBMIT METHOD OF INSTALLATION FOR APPROVAL THAT PROVIDES STEP-BY-STEP SEQUENCE OF OPERATIONS INCLUDING, BUT NOT LIMITED TO , CORING AND TRENCHING, LIGHT BASE, CONDUIT, COUNTERPOISE, GROUNDING, TIE-BAR CAGE AND CONCRETE PLACEMENT.
5. SEE CIVIL DRAWINGS FOR PAVEMENT DESIGN. CONTRACTOR SHALL COORDINATE CAN INSTALLATION WITH CIVIL DETAILS.
6. NEW FIXTURE ID MARKERS SHALL BE INSTALLED AT THE SAME LOCATIONS AS EXISTING ID MARKERS NOTED IN CONTRACTORS SURVEY PERFORMED BEFORE START OF PAVEMENT REMOVAL.

STATE OF MISSOURI
2/9/23
WALTER R. MAY
NUMBER PE-2015020572
PROFESSIONAL ENGINEER

No.	Revision	Date

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CITY OF FOUNTAINS
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TAXIWAY E AND TAXIWAY J REHABILITATION

ELECTRICAL LIGHTING DETAILS

Design: WRM	CAD File: 62230566ELD.dwg	Aviation Project No. 62230566	
Drawn: CMM	Dwg Date: 2/9/23	Dwg. No. EL11	103 of 104

CAD File: 62230566ELD.dwg

TAXIWAY E4 LIGHTS		
NUMBER	NORTHING	EASTING
135	1141480.51	2731090.48
136	1141493.83	2731073.77
137	1141509.16	2731052.64
138	1141520.90	2731034.79
139	1141533.08	2731014.42
140	1141544.81	2730992.58
141	1141554.61	2730972.13
142	1141564.39	2730949.10
143	1141572.21	2730928.05
144-1	1141579.49	2730905.46

TAXIWAY E5 LIGHTS		
NUMBER	NORTHING	EASTING
135	1140506.46	2730864.12
136	1140519.75	2730847.40
137	1140535.04	2730826.28
138	1140546.78	2730808.43
139	1140558.95	2730788.07
140	1140570.82	2730765.95
141	1140580.50	2730745.81
142	1140590.28	2730722.85
143	1140598.16	2730701.79
144-1	1140605.48	2730679.23

TAXIWAY E6 LIGHTS		
NUMBER	NORTHING	EASTING
129	1135689.58	2729700.25
130	1135680.69	2729691.93
131	1135672.23	2729682.86
132	1135664.86	2729672.87
133	1135658.70	2729662.10
134	1135654.51	2729652.56
135	1135650.28	2729638.79
136	1135648.14	2729626.57
137	1135647.43	2729613.35
138-1	1135648.14	2729601.80

TAXIWAY CF EDGE LIGHTS		
NUMBER	NORTHING	EASTING
165	1138162.73	2730314.98
166	1138231.70	2730321.33
167	1138295.35	2730327.13
168	1138358.77	2730333.07
169	1138406.78	2730344.19
170	1138516.81	2730369.84
171	1138626.89	2730395.34
172	1138675.40	2730407.20
173	1138734.63	2730427.96
174	1138793.77	2730448.72
175	1138852.82	2730469.52
176	1138912.13	2730489.91
177	1138945.37	2730510.24
180	1139157.07	2730559.41

TAXIWAY CF EDGE LIGHTS		
NUMBER	NORTHING	EASTING
181	1139231.47	2730409.96
182	1139205.81	2730393.02
183	1139187.81	2730368.92
184	1139185.49	2730339.10
185	1139014.27	2730300.64
186	1139001.93	2730325.81
187	1138975.04	2730339.51
188	1138944.60	2730343.38
189	1138882.77	2730336.00
190	1138820.85	2730328.76
191	1138759.11	2730321.37
192	1138697.13	2730313.95
193	1138648.42	2730302.74
194	1138538.43	2730277.19
195	1138428.36	2730251.64
196	1138379.65	2730240.38
197	1138310.33	2730220.42
198	1138242.29	2730196.52

TAXIWAY CW EDGE LIGHTS		
NUMBER	NORTHING	EASTING
89	1137812.35	2729490.89
90	1137830.67	2729456.17
91	1137863.98	2729435.52
94	1137882.30	2729266.34
95	1137854.23	2729238.80
96	1137843.93	2729200.94
97	1137843.93	2729150.90
98	1137843.93	2729069.94
99	1137843.95	2728989.03

TAXIWAY E EDGE LIGHTS		
NUMBER	NORTHING	EASTING
145	1135091.78	2729581.92
146	1135258.56	2729613.07
147	1139195.84	2730555.80
148	1139258.09	2730563.57
149	1139320.41	2730570.94
150	1139382.69	2730578.51
151	1139445.00	2730585.90
152	1139493.79	2730596.56
153	1139620.45	2730625.99
154	1139795.64	2730666.67
155	1139971.16	2730707.38
156	1140098.42	2730737.03
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158	1140206.17	2730770.85
159	1140265.83	2730793.58
160	1140325.55	2730816.35
161	1140385.15	2730839.10
162	1140689.03	2730912.92
163	1140780.19	2730911.50
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167	1141067.15	2730961.94
168	1141120.50	2730974.39
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172	1141359.25	2731065.37
173	1141663.31	2731139.52
174	1141754.24	2731137.69
175	1141844.40	2731150.29
176	1141934.48	2731163.38
177	1141976.73	2731173.09
178	1142019.57	2731183.06
179	1142062.27	2731193.05
180	1142111.02	2731204.43
181	1142158.05	2731215.62
182	1142254.50	2731238.01
183	1142350.69	2731260.38

TAXIWAY E EDGE LIGHTS		
NUMBER	NORTHING	EASTING
184	1142446.95	2731282.93
185	1142543.20	2731305.19
186	1142639.54	2731327.71
187	1142735.67	2731350.09
188	1142783.48	2731361.08
189	1142832.24	2731372.48
190	1142876.79	2731382.85
191	1142921.64	2731393.31
192	1142966.32	2731403.54
193	1143025.43	2731424.35
194	1143084.54	2731445.06
195	1143143.67	2731465.89
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197	1143111.40	2731325.26
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205	1142677.33	2731217.86
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207	1142589.78	2731181.74
208	1142570.18	2731155.69
209	1142389.30	2731112.45
210	1142362.41	2731126.30
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212	1142269.81	2731122.78
213	1142207.74	2731115.34
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216	1142040.86	2731090.70
217	1141998.22	2731080.75
218	1141955.58	2731070.82
219	1141895.29	2731050.18
220	1141835.24	2731029.10
221	1141775.20	2731008.02
222	1141715.15	2730986.90

TAXIWAY E EDGE LIGHTS		
NUMBER	NORTHING	EASTING
223	1141689.66	2730969.95
224	1141671.50	2730945.87
225	1141486.03	2730902.69
226	1141459.12	2730916.31
227	1141428.62	2730920.36
228	1141369.13	2730913.32
229	1141309.62	2730906.14
230	1141250.11	2730899.13
231	1141190.61	2730891.94
232	1141142.72	2730881.90
233	1141088.78	2730869.41
234	1141035.32	2730857.08
235	1140981.60	2730844.55
236	1140921.31	2730823.96
237	1140861.39	2730802.85
238	1140801.25	2730781.77
239	1140741.18	2730760.70
240	1140715.60	2730743.74
241	1140697.57	2730719.53
242	1140512.58	2730676.02
243	1140485.05	2730690.14
244	1140454.58	2730693.93
245	1140382.98	2730685.77
246	1140311.38	2730676.98
247	1140239.79	2730668.44
248	1140168.68	2730655.71
249	1140120.00	2730644.38
250	1139992.74	2730614.87
251	1139817.33	2730574.21
252	1139642.01	2730533.40
253	1139515.41	2730504.03
254	1139466.70	2730492.68
255	1139407.86	2730471.95
256	1139349.03	2730451.38
257	1139290.27	2730430.63



No.	Revision	Date

CITY OF KANSAS CITY, MISSOURI
AVIATION DEPARTMENT
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TAXIWAY E AND TAXIWAY J
REHABILITATION

ELECTRICAL LIGHT FIXTURE SCHEDULES

Design: WRM	CAD File: 62230566ELD.dwg	Aviation Project No. 62230566
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