#### **CONTRACT FOR CONSTRUCTION**

THIS CONTRACT FOR CONSTRUCTION ("Contract") is made and entered into as of the date stated on the City's signature page below (the "Effective Date") by and between the CITY AND COUNTY OF DENVER, a municipal corporation of the State of Colorado acting on behalf of its Department of Aviation (the "City"), and FLATIRON DRAGADOS CONSTRUCTORS, INC., a Delaware corporation in good standing and authorized to do business in the State of Colorado ("Contractor") (collectively the "Parties").

#### WITNESSETH

WHEREAS, the City, for at least three (3) consecutive days, advertised that proposals would be received for furnishing all labor, tools, supplies, equipment, materials and everything necessary and required for the construction and installation of the work under Invitation for Bid No. 202476290, RWY 17L-35R Wildlife Hazard Mitigation Ph 2 All Drainages (the "**Project**") at Denver International Airport ("**DEN**"); and

WHEREAS, a proposal in response to said advertisement have been received by the Chief Executive Officer of DEN (the "CEO"), who has recommended that a contract for the work be made and entered into with Contractor, which was the lowest, responsive, qualified bidder; and

**WHEREAS**, Contractor is qualified, willing, and able to perform the work in accordance with its proposal and the Contract Documents defined below;

**NOW, THEREFORE**, for and in consideration of the compensation to be paid by the City to Contractor and the other terms and conditions of this Contract, the Parties agree as follows:

## **1. CONTRACT DOCUMENTS:**

It is agreed by the Parties that the instruments, drawings, and documents described below and whether attached to and bound with this Contract or not (the "**Contract Documents**"), are incorporated into the Contract by this reference, and are as fully a part of this Contract as if they were set out here verbatim and in full:

- Contract
- Notice to Proceed
- Form of Final Receipt
- Building Information Modeling ("BIM") if applicable
- Change Directives
- Change Orders
- Exhibit A Federal Appendices
- Exhibit B City Equal Employment Opportunity Provisions
- Exhibit C Insurance Requirements
- Exhibit D Prevailing Wage Schedules
- Exhibit E Special Conditions
- Exhibit F Standard Specifications for Construction General Contract

Conditions(2011 Edition) (the "**Yellow Book**") ("**General Conditions**") (Table of Contents attached as Exhibit F)

- Exhibit G Performance Bond
- Exhibit H Payment Bond
- Exhibit I Technical Specifications
- Exhibit J Contract Drawings
- Exhibit K Invitation for Bids and Contractor's Response to Invitation for Bids

In the event of an irreconcilable conflict between a provision of Sections 1 through 33 of this Contract and any other provisions of the Contract Documents such that it is impossible to give effect to both, the order of precedence to determine which document shall control to resolve such conflict is as follows, in descending order:

- 1. Exhibit A Federal Appendices
- 2. Contract
- 3. Change Directives
- 4. Change Orders
- 5. Exhibit B City Equal Employment Opportunity Provisions
- 6. Exhibit E Special Conditions
- Exhibit F Standard Specifications for Construction General Contract Conditions (2011 Edition) (the "Yellow Book") ("General Conditions") (Table of Contents attached as Exhibit F)
- 8. Exhibit C Insurance Requirements
- 9. Exhibit D Prevailing Wage Schedules
- 10. Exhibit I Project Manual
- 11. Exhibit J Contract Drawings
- 12. Exhibit K Invitation for Bids and Contractor's Response to Invitation for Bids
- 13. Exhibit G Performance Bond
- 14. Exhibit H Payment Bond
- 15. Notice to Proceed
- 16. Form of Final Receipt
- 17. Building Information Modeling ("**BIM**") if applicable

The remaining order of precedence is established in General Conditions Title 4.

#### 2. SCOPE OF WORK:

Contractor shall furnish all labor and tools, supplies, equipment, superintendence, materials, and everything necessary for and required to do, perform, and complete all of the work described, drawn, set forth, shown, and included in the Contract Documents (the "**Work**").

## **3. TERM OF CONTRACT:**

The Senior Vice President of Design, Engineering and Construction (the "SVP") will issue a written notice to proceed to Contractor (the "Notice to Proceed"), and Contractor shall begin performing the Work required under this Contract within ten (10) days of such Notice to Proceed (the "Commencement Date"). Contractor shall fully complete the Work in its entirety within 200 (Two Hundred) consecutive calendar days from the date of the Notice to Proceed ("**Contract Time**"). Contractor is not authorized to commence work prior to its receipt of the Notice to Proceed.

### 4. TERMS OF PAYMENT:

The City agrees to pay Contractor for the performance and completion of all of the Work as required by the Contract Documents, and Contractor agrees to accept as its full and only compensation therefor, a total amount of **EIGHT MILLION, FOUR HUNDRED AND THIRTY-FOUR THOUSAND EIGHT HUNDRED SEVENTY TWO DOLLARS AND SIXTY-NINE CENTS (\$ 8,434,872.69)** (the "Maximum Contract Amount"). In no event will the City's liability exceed the Maximum Contract Amount, as adjusted by duly authorized Change Orders in accordance with this Contract. The Parties specifically agree that any performance by Contractor hereunder shall not subject the City to any cost, charge, or fee not specified above.

#### 5. VERIFIED STATEMENT OF CLAIMS:

Colorado Revised Statutes § 38-26-107 ("C.R.S.") requires that, in the event any person or company files a verified statement of amounts due and unpaid in connection with a claim for labor and materials supplied on this project, the City shall withhold from payments to Contractor sufficient funds to insure the payment of any such claims. Should the City be made a party to any lawsuit to enforce such unpaid claims or any lawsuit arising out of or relating to such withheld funds, Contractor agrees to pay to the City its costs and a reasonable attorney's fee incurred in any such lawsuit. Because the City Attorney Staff does not bill the City for legal services on an hourly basis, Contractor agrees a reasonable fee shall be computed at the rate of two hundred dollars and no cents (\$200.00) per hour of City Attorney time.

#### 6. **DISPUTES:**

All disputes arising under or related to this Contract shall be resolved by administrative hearing under the procedures described in *Exhibit F*, as modified by *Exhibit E*, if any, and the Denver Revised Municipal Code § 5-17 ("D.R.M.C.") and all related rules and procedures, including but not limited to DEN Rule 250. The determination resulting from said administrative hearing shall be final, subject only to Contractor's right to appeal the determination under Colorado Rule of Civil Procedure, Rule 106.

## 7. DEFENSE AND INDEMNIFICATION:

**A.** To the fullest extent permitted by law, Contractor hereby agrees to defend, indemnify, reimburse and hold harmless City, its appointed and elected officials, agents and employees for, from and against all liabilities, claims, judgments, suits or demands for damages to persons or property arising out of, resulting from, or related to the work performed under this Contract that are due to the negligence or fault of the Contractor or the Contractor's agents, representatives, subcontractors, or suppliers ("**Claims**"). This indemnity shall be interpreted in the broadest possible manner consistent with the applicable law to indemnify the City.

**B.** Contractor's duty to defend and indemnify City shall arise at the time written notice

of the Claim is first provided to City regardless of whether suit has been filed and even if Contractor is not named as a Defendant.

**C.** Contractor will defend any and all Claims which may be brought or threatened against City and will pay on behalf of City any expenses incurred by reason of such Claims including, but not limited to, court costs and attorney fees incurred in defending and investigating such Claims or seeking to enforce this indemnity obligation, including but not limited to time expended by the City Attorney Staff, whose costs shall be computed at the rate specified in Section 5 . Such payments on behalf of City shall be in addition to any other legal remedies available to City and shall not be considered City's exclusive remedy.

**D.** Insurance coverage requirements specified in this Contract shall in no way lessen or limit the liability of the Contractor under the terms of this indemnification obligation. The Contractor shall obtain, at its own expense, any additional insurance that it deems necessary for the City's protection.

E. This defense and indemnification obligation shall survive the expiration or termination of this Contract.

# 8. WAIVER OF C.R.S. § 13-20-801, *ET SEQ*.:

Notwithstanding any other provision of this Contract, Contractor specifically waives all of the provisions of C.R.S. §§ 13-20-801 *et seq.* as they may relate to Contractor's performance under this Contract.

# 9. LIQUIDATED DAMAGES:

If Contractor fails to achieve Substantial Completion of the Work within the Contract Time or fails to substantially complete the Work described in the Scope of Work within the time set forth in the Special Conditions, the City will suffer substantial damages, which damages would be difficult to accurately determine. The Parties hereto have considered the possible elements of damages and have agreed that the amount of liquidated damages for Contractor's failure to substantially complete the work within the Contract Time or to substantially complete the work described in Milestone Areas within the time set forth in the Special Conditions shall be as provided in the Special Conditions. If Contractor shall fail to pay such liquidated damages promptly upon demand therefor, the Surety on its Performance Bond and Payment Bond shall pay such damages. Also, the City may withhold all, or any part of, such liquidated damages from any payment due to Contractor. Additional provisions relating to liquidated damages are set forth in the Construction Contract General Conditions and Special Conditions.

# **10. INSURANCE REQUIREMENTS:**

A. Contractor shall obtain and keep in force all of the minimum insurance coverage forms and amounts set forth in *Exhibit C* ("Insurance Requirements") during the entire Term of this Agreement, including any extensions of the Agreement or other extended period stipulations stated in *Exhibit C*. All certificates of insurance must be received and accepted by the City before any airport access or work commences.

**B.** Contractor shall ensure and document that all subcontractors performing services or providing goods hereunder procure and maintain insurance coverage that is appropriate to the primary business risks for their respective scopes of performance. At minimum, such insurance must conform to all applicable requirements of DEN Rules and Regulations Part 230 and all other applicable laws and regulations.

**C.** The City in no way warrants or represents the minimum limits contained herein are sufficient to protect Contractor from liabilities arising out of the performance of the terms and conditions of this Contract by Contractor, its agents, representatives, employees, or subcontractors. Contractor shall assess its own risks and maintain higher limits and/or broader coverage as it deems appropriate and/or prudent. Contractor is not relieved of any liability or other obligations assumed or undertaken pursuant to this Contract by reason of its failure to obtain or maintain insurance in sufficient amounts, duration, or types.

**D.** In no event shall the City be liable for any of the following: (i) business interruption or other consequential damages sustained by Contractor; (ii) damage, theft, or destruction of Contractor's inventory, or property of any kind; or (iii) damage, theft, or destruction of an automobile, whether or not insured.

**E.** The Parties understand and agree that the City, its elected and appointed officials, employees, agents and volunteers are relying on, and do not waive or intend to waive by any provisions of this Contract, the monetary limitations and any other rights, immunities and protections provided by the Colorado Governmental Immunity Act, C.R.S. §§ 24-10-101, *et seq.*, or otherwise available to the City, its elected and appointed officials, employees, agents and volunteers.

## **11. CONTRACT BINDING:**

It is agreed that this Contract shall be binding on and inure to the benefit of the Parties hereto, their heirs, executors, administrators, assigns, and successors.

## **12. SEVERABILITY:**

If any part, portion, or provision of this Contract shall be found or declared null, void, or unenforceable for any reason whatsoever by any court of competent jurisdiction or any governmental agency having authority thereover, only such part, portion, or provision shall be affected thereby and all other parts, portions, and provisions of this Contract shall remain in full force and effect.

## **13.** ASSIGNMENT:

Contractor shall not assign, pledge or transfer its duties, obligations, and rights under this Contract, in whole or in part, without first obtaining the written consent of the CEO or their authorized representative. Any attempt by Contractor to assign or transfer its rights hereunder without such prior written consent shall, at the option of the CEO or their authorized representative, automatically terminate this Contract and all rights of Contractor hereunder.

#### 14. APPROPRIATIONS:

Payment will be in accordance with the provisions of the Contract Documents, including Title 9 of the General Conditions, and will be made solely and exclusively from funds appropriated or otherwise lawfully made available for the purposes of this Contract from the Airport System Funds. The City has no obligation to make payments from any other fund or source or to make additional appropriations or allocations to such fund to satisfy such costs or other obligations.

#### 15. APPROVALS:

In the event this Contract calls for the payment by the City of Five Million Dollars and no cents (\$5,000,000.00) or more, approval by the Denver City Council, acting by Resolution in accordance with Section 3.2.6 of the Charter of the City and County of Denver, is and shall be an express condition precedent to the lawful and binding execution and performance of this Contract.

#### **16. JOINT VENTURE:**

If Contractor is a Joint Venture, the partners to the Joint Venture shall be jointly and severally liable to the City for the performance of all duties and obligations of Contractor which are set forth in the Contract.

## **17. NO DISCRIMINATION IN EMPLOYMENT:**

In connection with the performance of work under the Agreement, the Contractor may not refuse to hire, discharge, promote, demote, or discriminate in matters of compensation against any person otherwise qualified, solely because of race, color, religion, national origin, ethnicity, citizenship, immigration status, gender, age, sexual orientation, gender identity, gender expression, marital status, source of income, military status, protective hairstyle, or disability. The Contractor shall insert the foregoing provision in all subcontracts.

#### **18.** COORDINATION OF SERVICES:

Contractor agrees to perform its work under this Contract in accordance with the operational requirements of DEN, and all work and movement of personnel or equipment on areas included within the DEN site shall be subject to the regulations and restrictions established by the City or its authorized agents.

## **19. COMPLIANCE WITH ALL LAWS AND REGULATIONS:**

A. Contractor and its subcontractor(s) shall perform all work under this Contract in compliance with all existing and future applicable laws, rules, regulations, and codes of the United States, and the State of Colorado and with the City Charter, ordinances, Executive Orders, and rules and regulations of the City.

**B.** Contractor shall perform all work in compliance with Executive Order 123 regarding Sustainability as may be directed by the City, including the requirement that all new City buildings and major renovations will be certified to the applicable LEED Gold Certification, with the goal of achieving LEED Platinum where economically feasible. Contractor also shall

comply with all applicable DEN design and construction standards, including the DEN Design Standards Manuals, which are incorporated herein by reference. Current versions can be found at: https://business.flydenver.com/bizops/bizRequirements.asp.

# **20. PREVAILING WAGE REQUIREMENTS:**

**A.** In addition to the Davis-Bacon Requirements contained in *Exhibit A*, Contractor shall comply with, and agrees to be bound by, all requirements, conditions and determinations of the City regarding the Payment of Prevailing Wages Ordinance, D.R.M.C. §§20-76 through 20-79, including, but not limited to, the requirement that every covered worker working on a City-owned or leased building or on City-owned land shall be paid no less than the prevailing wages and fringe benefits in effect on the date the bid or request for proposal was advertised. In the event a request for bids, or a request for proposal, was not advertised, Contractor shall pay every covered worker no less than the prevailing wages and fringe benefits in effect on the date funds for the Contract were encumbered.

Date bid or proposal issuance was advertised November 12, 2024.

**B.** Prevailing wage and fringe rates will adjust on the yearly anniversary of the actual date of bid or proposal issuance, if applicable, or the date of the written encumbrance if no bid/proposal issuance date is applicable. Unless expressly provided for in this Contract, Contractor will receive no additional compensation for increases in prevailing wages or fringe rates.

**C.** Contractor shall provide the Auditor of the City and County of Denver with a list of all subcontractors providing any services under the Contract.

**D.** Contractor shall provide the Auditor with electronically-certified payroll records for all covered workers employed under the Contract in a manner specified by the Auditor.

**E.** Contractor shall prominently post at the work site the current prevailing wage and fringe rates. The posting must inform workers that any complaints regarding the payment of prevailing wages or fringe benefits may be submitted to the Denver Auditor by calling 720-913-5000 or emailing auditor@denvergov.org.

**F.** If Contractor fails to pay workers as required by the Prevailing Wage Ordinance, Contractor will not be paid until documentation of payment satisfactory to the Auditor has been provided. The Auditor may enforce the Prevailing Wage Ordinance in a manner provided by law, including the Prevailing Wage Ordinance. The City also may, by written notice, suspend or terminate work if Contractor fails to pay required wages and fringe rates.

# 21. CITY PROMPT PAYMENT:

A. The City will make monthly progress payments to the Contractor for all services performed under this Contract based upon the Contractor's monthly invoices or shall make payments as otherwise provided in this Agreement. The City's Prompt Payment Ordinance, D.R.M.C. §§ 20-107 to 20-118, applies to invoicing and payment under this Contract.

**B.** Final Payment to the Contractor shall not be made until after the Project is accepted, and all certificates of completion, record drawings, reproducible copies, and other deliverables are delivered to the City, and the Contract is otherwise fully performed by the Contractor. The City may, at the discretion of the SVP, withhold reasonable amounts from billing and the entirety of the final payment until all such requirements are performed to the satisfaction of the SVP

# 22. OWNERSHIP AND DELIVERABLES:

Upon payment to Contractor, all records, data, deliverables, and any other work product prepared by Contractor or any custom development work performed by Contractor for the purpose of performing this Contract on or before the day of the payment, whether a periodic or final payment, shall become the sole property of the City. Upon request by the City, or based on any schedule agreed to by Contractor and the City, Contractor shall provide the City with copies of the data/files that have been uploaded to any database maintained by or on behalf of Contractor or otherwise saved or maintained by Contractor as part of the services provided to the City under this Contract. All such data/files shall be provided to the City electronically in a format agreed to by the Parties. Contractor also agrees to allow the City to review any of the procedures Contractor uses in performing any work or other obligations under this Contract, and to make available for inspection any and all notes, documents, materials, and devices used in the preparation for or performance of any of the scope of work, for up to six (6) years after termination of this Contract. Upon written request from the City, Contractor shall deliver any information requested pursuant to this Section within ten (10) business days in the event a schedule or otherwise agreed-upon timeframe does not exist.

# 23. COLORADO OPEN RECORDS ACT:

**A.** Contractor acknowledges that the City is subject to the provisions of the Colorado Open Records Act ("**CORA**"), C.R.S. §§ 24-72-201 *et seq.*, and Contractor agrees that it will fully cooperate with the City in the event of a request or lawsuit arising under such act for the disclosure of any materials or information which Contractor asserts is confidential or otherwise exempt from disclosure. Any other provision of this Contract notwithstanding, all materials, records, and information provided by Contractor to the City shall be considered confidential by the City only to the extent provided in CORA, and Contractor agrees that any disclosure of information by the City consistent with the provisions of CORA shall result in no liability of the City.

**B.** In the event of a request to the City for disclosure of such information, time and circumstances permitting, the City will make a good faith effort to advise Contractor of such request in order to give Contractor the opportunity to object to the disclosure of any material Contractor may consider confidential, proprietary, or otherwise exempt from disclosure. In the event Contractor objects to disclosure, the City, in its sole and absolute discretion, may file an application to the Denver District Court for a determination of whether disclosure is required or exempted. In the event a lawsuit to compel disclosure is filed, the City may tender all such material to the court for judicial determination of the issue of disclosure. In both situations, Contractor agrees it will either waive any claim of privilege or confidentiality or intervene in such legal process to protect materials Contractor does not wish disclosed. Contractor agrees to defend, indemnify, and hold harmless the City, its officers, agents, and employees from any claim, damages, expense, loss, or costs arising out of Contractor's objection to disclosure, including

Flatiron Dragados Constructors, Inc. Contract No. 202476290-00 prompt reimbursement to the City of all reasonable attorney's fees, costs, and damages the City may incur directly or may be ordered to pay by such court, including but not limited to time expended by the City Attorney Staff, whose costs shall be computed at the rate specified in Section 5.

# 24. EXAMINATION OF RECORDS AND AUDITS:

**A.** Any authorized agent of the City, including the City Auditor or his or her representative, has the right to access and the right to examine, copy and retain copies, at City's election in paper or electronic form, any pertinent books, documents, papers and records related to Contractor's performance pursuant to this Agreement, provision of any goods or services to the City, and any other transactions related to this Agreement. Contractor shall cooperate with City representatives and City representatives shall be granted access to the foregoing documents and information during reasonable business hours and until the latter of three (3) years after the final payment under the Agreement, the City Auditor shall be subject to government auditing standards issued by the United States Government Accountability Office by the Comptroller General of the United States, including with respect to disclosure of information acquired during the course of an audit. No examination of records and audit pursuant to this paragraph shall require Parties to make disclosures in violation of state or federal privacy laws. Parties shall at all times comply with D.R.M.C. 20-276.

**B.** Additionally, Contractor agrees until the expiration of six (6) years after the final payment under this Contract, any duly authorized representative of the City, including the CEO or their representative, shall have the right to examine any pertinent books, documents, papers and records of Contractor related to Contractor's performance of this Contract, including communications or correspondence related to Contractor's performance, without regard to whether the work was paid for in whole or in part with federal funds or was otherwise related to a federal grant program.

**C.** In the event the City receives federal funds to be used toward the services performed under this Contract, the Federal Aviation Administration ("**FAA**"), the Comptroller General of the United States and any other duly authorized representatives shall have access to any books, documents, papers and records of Contractor which are directly pertinent to a specific grant program for the purpose of making audit, examination, excerpts and transcriptions. Contractor further agrees that such records will contain information concerning the hours and specific services performed along with the applicable federal project number.

# **25.** COMPLIANCE WITH DENVER WAGE LAWS:

To the extent applicable to the Contractor's work hereunder, the Contractor shall comply with, and agrees to be bound by, all rules, regulations, requirements, conditions, and City determinations regarding the City's Minimum Wage and Civil Wage Theft Ordinances, Sections 58-1 through 58-26 D.R.M.C., including, but not limited to, the requirement that every covered worker shall be paid all earned wages under applicable state, federal, and city law in accordance with the foregoing D.R.M.C. Sections. By executing this Agreement, the Contractor expressly acknowledges that the Contractor is aware of the requirements of the City's Minimum Wage and Civil Wage Theft

Ordinances and that any failure by the Contractor, or any other individual or entity acting subject to this Agreement, to strictly comply with the foregoing D.R.M.C. Sections shall result in the penalties and other remedies authorized therein.

## 26. COMPLIANCE WITH DISADVANTAGED BUSINESS ENTERPRISE REQUIREMENTS:

Contractor shall comply with Code of Federal Regulations ("C.F.R."), 49 C.F.R. Part 26 ("**DBE Requirements**"), as set forth in <u>Exhibit A</u> and administered by the Division of Small Business Opportunity. The Contractor is committed to, at a minimum, meet the participation goal of Twenty-Five and Thirteen Hundredths Percent (25.13%) established for this Project, utilizing properly certified DBE subconsultants, subcontractors, suppliers, manufacturers, manufacturer's representatives or brokers.

## 27. SENSITIVE SECURITY INFORMATION:

Contractor acknowledges that, in the course of performing its work under this Contract, Contractor may be given access to Sensitive Security Information ("**SSI**"), as material is described in the Code of Federal Regulations, 49 C.F.R. Part 1520. Contractor specifically agrees to comply with all requirements of the applicable federal regulations, including but not limited to, 49 C.F.R. Parts 15 and 1520. Contractor understands any questions it may have regarding its obligations with respect to SSI must be referred to DEN's Security Office.

# **28. DEN SECURITY:**

A. Contractor, its officers, authorized officials, employees, agents, subcontractors, and those under its control, shall comply with safety, operational, or security measures required of Contractor or the City by the FAA or TSA. If Contractor, its officers, authorized officials, employees, agents, subcontractors or those under its control, fail or refuse to comply with said measures and such non-compliance results in a monetary penalty being assessed against the City, then, in addition to any other remedies available to the City, Contractor shall fully reimburse the City any fines or penalties levied against the City, and any attorney fees or related costs paid by the City as a result of any such violation. Contractor must pay this amount within fifteen (15) days from the date of the invoice or written notice. Any fines and fees assessed by the FAA or TSA against the City due to the actions of Contractor and/or its agents will be deducted directly from the invoice for that billing period.

**B.** Contractor is responsible for compliance with Airport Security regulations and 49 C.F.R. Parts 1542 (Airport Security) and 14 C.R.F. Parts 139 (Airport Certification and Operations). Any and all violations pertaining to Parts 1542 and 139 resulting in a fine will be passed on to and borne by Contractor. The fee/fine will be deducted from the invoice at time of billing.

## **29. FEDERAL RIGHTS:**

**A.** This Contract is subject and subordinate to the terms, reservations, restrictions and conditions of any existing or future contracts between the City and the United States, the execution

of which has been or may be required as a condition precedent to the transfer of federal rights or property to the City for airport purposes, and the expenditure of federal funds for the extension, expansion or development of the Airport System.

(i) <u>General Civil Rights</u>: Contractor agrees to comply with pertinent statutes, Executive Orders and such rules as are promulgated to ensure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or disability be excluded from participating in any activity conducted with or benefiting from Federal Assistance. This provision binds Contractor and subcontractors from the bid solicitation period through the completion of the Contract. This provision is in addition to that required of Title VI of the Civil Rights Act of 1964.

(ii) <u>Federal Fair Labor Standards Act</u>: This Contract incorporates by reference the provisions of 29 C.F.R. Part 201, 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. Contractor agrees to incorporate by reference the provisions of FLSA in all contracts and subcontracts resulting from this Contract. Contractor has full responsibility to monitor compliance to the referenced regulation. Contractor must address any claims or disputes arising from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

(iii) <u>Occupational Safety and Health Act</u>: This Contract incorporates by reference the requirements of 29 C.F.R. Part 1910 with the same force and effect as if given in full text. Contractor must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. Contractor retains full responsibility to monitor its compliance and any subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (29 C.F.R. Part 1910). Contractor 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.

(iv) Contractor covenants it will include the provisions of this section in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Federal Acts, Regulations and directives issued pursuant thereto. Contractor covenants it will take action with respect to any subcontract or procurement as the City or the FAA may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, Contractor may request the City to enter into any litigation to protect the interests of the City. In addition, Contractor may request the United States to enter into the litigation to protect the interests of the United States.

## **30.** USE, POSSESSION OR SALE OF ALCOHOL OR DRUGS:

Contractor shall cooperate and comply with the provisions of Denver Executive Order No. 94 and <u>Attachment A</u> thereto concerning the use, possession or sale of alcohol or drugs. Violation

of these provisions or refusal to cooperate with implementation of the policy can result in the City barring Contractor from City facilities or participating in City operations.

# **31. CITY SMOKING POLICY**

Contractor and its officers, agents and employees shall cooperate and comply with the provisions of Denver Executive Order No. 99 and the Colorado Indoor Clean Air Act, prohibiting smoking in all City buildings and facilities.

# **32.** CITY EXECUTION OF CONTRACT:

This Contract is expressly subject to, and shall become effective upon, the execution of all signatories of the City and, if required, the approval of Denver City Council. This Contract may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same.

# **33. ELECTRONIC SIGNATURES AND ELECTRONIC RECORDS:**

The Contract, and any other documents requiring a signature hereunder, may be signed electronically by the City and/or Contractor in the manner specified by the City. The Parties agree not to deny the legal effect or enforceability of the Contract solely because it is in electronic form or because an electronic record was used in its formation. The Parties agree not to object to the admissibility of the Contract in the form of an electronic record, or a paper copy of an electronic document, or a paper copy of a document bearing an electronic signature, on the ground that it is an electronic record or electronic signature or that it is not in its original form or is not an original.

# [SIGNATURE PAGES FOLLOW]

| <b>Contract Control Number:</b> | PLANE-202476290-00                   |
|---------------------------------|--------------------------------------|
| Contractor Name:                | FLATIRON DRAGADOS CONSTRUCTORS, INC. |

IN WITNESS WHEREOF, the parties have set their hands and affixed their seals at Denver, Colorado as of:

SEAL

# **CITY AND COUNTY OF DENVER:**

**REGISTERED AND COUNTERSIGNED:** 

ATTEST:

By:

**APPROVED AS TO FORM:** 

Attorney for the City and County of Denver

By:

By:

By:

**Contract Control Number: Contractor Name:** 

PLANE-202476290-00 FLATIRON DRAGADOS CONSTRUCTORS, INC.

DocuSigned by: Tolurs By: Frant

Name: Grant Johns

(please print)

Title: \_\_\_\_\_\_\_ Vice President & District Manager (please print)

### ATTEST: [if required]

DocuSigned by: By: 9738E27CADF4B5..

Name:  $\frac{\text{Kevin Lynch}}{(\text{please print})}$ 

Title: Division Finance Manager (please print)

# EXHIBIT A

# AIP/FAA FUNDED CONSTRUCTION PROVISIONS

#### A.1.3 ACCESS TO RECORDS AND REPORTS

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.

### A.3.3 BREACH OF CONTRACT TERMS

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.

To the extent provided in this Contract, 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 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.

### A.5.3.1 GENERAL CIVIL RIGHTS PROVISIONS

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.

### A.5.3.2 SPECIFIC CLAUSE THAT IS USED FOR GENERAL CONTRACT AGREEMENTS

The above provision binds the Contractor and subcontractors from the bid solicitation period through the completion of the contract.

## A.6.4.1 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).

## A.6.4.2 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.

#### A.7.3 CLEAN AIR AND WATER POLLUTION CONTROL

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.

Contractor must include this requirement in all subcontracts that exceed \$150,000.

## A.8.3 CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

#### 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.

### A.9.3 COPELAND "ANTI-KICKBACK" ACT

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.

#### A.10.3 DAVIS-BACON REQUIREMENTS

#### 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) 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) 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

<u>https://www.dol.gov/agencies/whd/government-contracts/construction/payroll-certification</u> 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 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  $\S$  1001.

### A.12.3.3 DBE PROGRAM

#### **Disadvantaged Business Enterprise Requirements**

- a) 49 C.F.R. Part 26 or 40 C.F.R. Part 30 ("DBE Requirements") apply to this Agreement (or "Contract"). Contractor, its sub-consultants (or "subcontractors") shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Agreement. The Consultant shall carry out applicable DBE Requirements in the award and administration of federally assisted contracts. Failure by the Consultant to carry out these requirements is a material breach of this Agreement, which may result in the termination of this Agreement or such other remedy as the City deems appropriate as, 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 not responsible.

Consequently, Contractor must fully comply with the DBE Requirements in bidding and performing hereunder.

- b) The DBE Requirements provide for the adoption of a good faith goals program, to be administered by the Division of Small Business Opportunity (DSBO). As such, each proposer must comply with the terms and conditions of the DBE Requirements in submitting its proposal and, if awarded the Agreement, in performing all Work thereunder. A proposer's failure to comply with the DBE Requirements, any Rules or Regulations promulgated pursuant thereto, or any additional requirements contained herein may render a proposal non-responsive and may constitute cause for rejection.
- c) In accordance with the DBE Requirements, the Contractor is committed to, at a minimum, meet the participation goal of twenty-five percent (25%) established for this Project utilizing properly certified DBE subconsultants, subcontractors, suppliers, manufacturers, manufacturer's representatives or brokers.
- d) The Contractor(s) are required to report participation in the Small Business Certification and Contract Management System also known as B2GNow. B2Gnow is the compliance monitoring system DSBO utilizes to implement these payment monitoring requirements. Prime Contractor(s), are required to confirm in B2Gnow payments received from the City and County of Denver monthly. This monthly requirement is known as an "audit" in B2GNow and will be referred to as such within the system and in any future communication received regarding such. You must inform subcontractors at all tiers of their responsibility to respond to audits. If certified subcontractors fail to confirm payments through the audits, participation for those payments will not count towards meeting the DBE commitment and will result in noncompliance action.

- e) By committing to working on this Agreement which is subjected to DBE Requirements, all DBE subconsultants, subcontractors, supplier, manufacturer, manufacturer's representative or broker must undergo a commercially useful function review ("CUF") or a DBE compliance review before their contract can be closed by DSBO. DBEs are required to fully cooperate with DSBO or its designee in the CUF and compliance review processes. The CUF review process will be initiated with a request for documents relating to contract performance and management of the actual work performed on the contract. The scope and intensity of each CUF review will depend on the specific facts and circumstances. The CUF review is purposed to verify the amount of DBE participation credit, to ensure that work is actually performed by the DBE consistent with the DBE Program requirements and/or to ensure that there is no activity engaged in by the DBE inconsistent with the intent and objectives of the DBE Program. The CUF review is formal and will be initiated with an orientation/explanation process and closed out with a briefing and determination. The DBE subcontractor may be subjected to an informal DBE compliance review by DSBO or its designee with or without notice. The informal compliance review will generally be conducted at the work site where the City observes and assesses the services/supplies being provided by the DBE.
- f) For all questions, concerns, and guidance pertaining to DBE Requirements for this Agreement, the Contractor or DBE/Non-DBE subcontractors are highly encouraged to consult the DBE Requirements or contact the DSBO designated Compliance Officer or DSBO representative at dsbo@denvergov.org.
- g) Required Subcontract DBE Flow-Down Provisions for all Tiers. While no subcontractor will be considered a third-party beneficiary to the Agreement between the City and the Contractor, the City considers subconsultants and subcontractors of every tier to be agents of the Contractor. Therefore, subconsultants and subcontractors of every tier will be held to all the requirements of the Agreement. With that understanding, the Contractor is well advised to conform all subcontracts to the requirements of the Agreement and make the Agreement available to all subconsultants and subcontractors. At the very least, the Contractor must include the following provisions in their subcontracts with their DBE subcontractors as well as ensure that all tiered-subcontract agreements/purchase orders: 1. Non-Discrimination clause, 2. Contractor Prompt Payment, 3. Counting and Reporting, 4. Joint Check Utilization, 5. DBE Termination/Substitution/Reduction Of Scope From Contract, 6. Changes, Amendments, Modifications.
- h) The Contractor will be required to submit to DSBO all DBE subcontracts within 30 days of execution. Throughout the Agreement if Contractor makes good faith efforts and engages or subcontracts with additional DBEs, Contractor must get approval from DSBO if the Contractor intends to count DBE participation from those additional DBEs. To count DBE participation toward the commitments made by the Contractor for DBE utilization, the DSBO must review DBE subcontract agreements and ensure that those additional DBEs are properly certified as a DBE(s) with the City and County of Denver or CDOT under the appropriate North American Industry Classification System ("NAICS") code that coincides with the scope of work that they will perform. Notwithstanding, DSBO shall also

request any appropriate documents it deems necessary. The Contractor shall ensure that this information flows down to all tiers of DBE subcontractors.

- i) Flow-Down Provision: Non-Discrimination. The Contractor, subconsultant or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Agreement. The Contractor shall carry out applicable DBE Requirements. Failure by the Contractor to carry out these requirements is a material breach of this Agreement, which may result in the termination of this Agreement 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 not responsible.
- j) Flow-Down Provision: Contractor Prompt Payment of Subcontractors. The Contractor shall:
  - i. Pay every subconsultant and subcontractor any invoiced and undisputed amounts for accepted and completed work within thirty (30) days of the Contractor's receipt of payment from the City and County of Denver. Any subcontractor, regardless of whether that subcontractor holds a city contract, may be required to make payments to subcontractors as set forth in this section.
  - ii. Retention
- i. From the total of the amount determined to be payable on a partial payment, 5 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 or provided in the Contract, the amount retained by the Owner will be in effect until the final payment is made as provided in the Contract.
- ii. The Contractor is required to pay all subcontractors for satisfactory performance of their work no later than 7 days after the Contractor has received a payment for that work as provided in the Prompt Pay Ordinance, D.R.M.C. §§ 20-107 to 20-118. Contractor must provide the Owner evidence of prompt and full payment of retainage held by the prime Contractor to the subcontractor within 7 days after the subcontractor's work is satisfactorily completed and the retainage is paid. 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 for the purposes of completing final settlement of the Contract.
- iii. Failure to comply with the payment requirements in this section may be grounds for the City withholding payment and considered a breach of this Agreement.

- iv. The payment requirements under this section shall apply to all subcontractors regardless of tier.
- k) Flow-Down Provisions: Counting and Reporting. In accordance with DBE Requirements, Firms identified to count toward DSBO's established participation goal must be certified by DSBO in that specified program and certified in the applicable NAICS code(s) to count toward the participation goal. In addition, Only the value of the work actually performed by the certified DBE will count toward the DBE participation goal.
- Flow-Down Provision: Joint Check Utilization. A joint check is a check issued by the Contractor to a DBE subcontractor and a material supplier or other third party. All joint check arrangements with DBE subs must be pre-approved by DSBO and must strictly adhere to the joint check requirements set forth in USDOT guidance regarding same. At a minimum, the request must be initiated by the DBE to remedy a financial hardship for a specific period of time. DSBO will closely monitor the use of joint checks to ensure that the independence of the DBE firm is not compromised. Joint check usage will not be approved merely for the convenience of the prime Contractor.
- m) Flow-Down Provision: DBE Termination/Substitution/Reduction of Scope from Contract. The Contractor must have good cause to remove/terminate/substitute/replace a DBE subcontractor and such removal/termination/substitution requires the consent and approval of City and County of Denver's DSBO. This section also includes reductions to the DBE scope of services and/or commitment values. No DBE subcontract agreement may contain a "termination for convenience" clause/provision because any termination for convenience provision/clause is contrary to the objectives of this part and the objectives of 49 CFR Part 26. To initiate the termination, substitution, removal, or replacement process with a DBE contractor/supplier (regardless of the tier), the Contractor or lower tier contractor/subcontractor must do the following:
  - i. Before transmitting to DSBO its request to terminate and/or substitute a DBE subcontractor, the Contractor must give notice in writing to the DBE subcontractor and notify City and County of Denver DSBO of such notice. The notice must include its request to terminate and/or substitute, replace and/or remove the DBE, the reason for the request and all documentation to support its claim. The Contractor must submit a copy of the notice and support documentation to DSBO at the time the original letter is sent to the DBE contractor.
  - ii. The Contractor must give the DBE subcontractor five (5) business days to respond to the notice and provide DSBO with reasons, if any, why it objects to the proposed termination of its DBE contract and why DSBO should not consent the Contractor's action;
  - DSBO will then open a formal investigation inclusive of review of all documentation, conduct interviews and site visits, if necessary. The Contractor carries the burden of proof to demonstrate good cause for the termination and/or substitution;

- iv. If DSBO determines that the Contractor has good cause to terminate the DBE firm, the DSBO will provide written consent of DBE removal and the requirements to substitute work to another DBE firm. If DSBO finds that good cause does not exist to terminate the DBE firm, DSBO will provide a written denial of the request to terminate/replace the DBE subcontractor and will immediately request a corrective action plan from the Contractor. Please note that if a Contractor elects to terminate, substitute and or reduce the scope of work initially committed to a DBE without the approval or consent of the City and County of Denver DSBO, this constitutes a material breach of a contract, which may result in the termination of the contract or such other remedy as the recipient/City and County of Denver deems necessary as set forth under the DBE Requirements. These legal remedies may include but are not limited to: withholding monthly progress payments, assessing sanctions, liquidated damages, and/or disqualifying the Contractor from future bidding as nonresponsible.
- v. For purposes of good cause to remove, replace, or terminate a DBE the following circumstances should exist: (1) failure or refusal by the DBE subcontractor to execute a written contract without good cause, (2) failure or refusal by the DBE subcontractor to perform the work of its subcontract in a way consistent with normal industry practice and the Contractor has not acted in bad faith, (3) failure by the DBE subcontractor to meet the Contractor's reasonable bonding or insurance requirements, (4) insolvency, bankruptcy or credit unworthiness by the DBE subcontractor to work on public works Program because of suspension or debarment proceedings, (6) a determination by City And County Of Denver that the DBE is not a responsible contractor, (7) voluntary withdrawal from the Program by written notification that has been verified, (8) ineligibility to receive DBE participation credit for the type of work to be performed, (9) other documented good cause that compels the replacement of the DBE.
- vi. When a DBE subcontractor is terminated with the approval of DSBO or fails to complete its work on the contract for any reason, prime contractors are required to make good faith efforts to find another DBE subcontractor to substitute for the original DBE.
- vii. Prime contractors must show that it took all necessary and reasonable steps to find another DBE to perform at least the same amount of work under the contract as the DBE that was terminated, to the extent needed to meet the contract goal DSBO has established for this Agreement and or commitments made by the Contractor for DBE utilization/participation. 49 CFR Part 26.53 shall serve as the criteria for evaluating compliance with the good faith efforts requirements. Additionally, bidders/proposers are required to solicit the support and assistance of the DSBO if they are unable to meet the DBE participation goal assigned to this contract.
- viii. The good faith efforts shall be documented by the Contractor. If the DSBO requests documentation under this provision, the Contractor shall submit the documentation to the DSBO Compliance Officer within 7 days, which may be extended for an

additional 7 days, if necessary, at the request of the Contractor, and DSBO shall provide a written determination to the Contractor stating whether or not good faith efforts have been demonstrated.

- ix. Contractor shall comply with Good Faith Efforts procedures as defined in the DBE Requirements. Contractor shall comply with this section of the DBE Requirements or any DBE program requirements and failure by the Contractor to carry out the requirements of this part as they administer this contract is a material breach of contract, which may result in the termination of the contract or such other remedy as the recipient deems necessary as set forth in the DBE Requirements. The legal remedies include but is not limited to: withholding monthly progress payments, assessing sanctions, liquidated damages, and/or disqualifying the Contractor from future bidding as non-responsible.
- x. The Contractor shall ensure that DBE tiered subcontractors comply with this Section and insert the provisions of this Section into all DBE lower tiered subcontractor agreements, regardless of their certification status.
- n) **Flow-Down Provision: Changes, Amendments, Modifications.** The DBE Goal(s) shall apply to the performance/value of all obligations under this Agreement, including any Changes, Modifications, Amendments and Change Orders whether initiated by the Contractor or City and County of Denver.

## A.13.3 TEXTING WHEN DRIVING

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.

## A.16.3.1 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.

## A.19.3 PROHIBITION OF SEGREGATED FACILITIES

(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.

## A.20.3 OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

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.

## A.21.3 PROCUREMENT OF RECOVERED MATERIALS

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:

- 1) The contract requires procurement of \$10,000 or more of a designated item during the fiscal year; or
- 2) 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 <u>www.epa.gov/smm/comprehensive-procurement-guidelines-construction-products</u>.

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.

## A.23.3.2 SEISMIC SAFETY

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.

## A.27.3 VETERAN'S PREFERENCE

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.

# RULES AND REGULATIONS

## REGARDING

### EQUAL EMPLOYMENT OPPORTUNITY

Promulgated and adopted by the Executive Director of the Department of Transportation and Infrastructure pursuant to and by authority of Article III, Division 2, Chapter 28 of the Revised Municipal Code of the City and County of Denver, and for the purpose of insuring that contractors, subcontractors and suppliers soliciting and receiving compensation for contract work from or through the City and County of Denver provide equal opportunity in employment without regard to race, color, creed, sex, national origin, age, religion, marital status, political opinion or affiliation or mental or physical handicap and meet certain requirements for the hiring, training, promotion, and treatment during employment of members of ethnic groups subject to differential treatment, including persons of African descent (Black), Spanish-surnamed (Hispanic), Asian-American and American Indian Groups.

## **RULE I - DEFINITIONS**

- A. "City" means the City and County of Denver.
- B. "Manager" shall mean the Executive Director of the Department of Transportation and Infrastructure for the City and County of Denver.
- C. "Contract" means a contract entered into with the City and County of Denver, financed in whole or in part by local resources or funds of the City and County of Denver, for the construction of any public building or prosecution or completion of any public work.
- D. "Contractor" means the original party to a contract with the City and County of Denver, also referred to as the "general" or "prime" contractor.
- E. "Director" means the Director of the Division of Small Business Opportunity.
- F. "Subcontractor" means any person, company, association, partnership, corporation, or other entity, which assumes by subordinate agreement some or all of the obligations of the general or prime contractor.
- G. The phrase "Bidding Specifications" as used in Article III, Division 2 of Chapter 28 of the Revised Municipal Code shall include BID CONDITION, INVITATION TO BID, and NOTICE OF PROPOSAL.
- H. "Affirmative Action Program" means a set of specific and result-oriented procedures or steps to which a contractor commits himself to apply every good faith effort to employ members of ethnic minority groups, to include persons of African descent (Black), Spanish surnamed (Hispanic), Asian-American, American Indians, and persons with mental or physical handicap.
- I. "Division of Small Business Opportunity" means the City agency established pursuant to Article III, Division 1 of Chapter 28 of the Denver Revised Municipal Code.

### RULE II - NOTICE OF HEARING

When results of conciliation efforts are unsatisfactory to the Manager and he is informed in accordance with Article III, Division 2 of Chapter 28 of the Revised Municipal code that a contractor or subcontractor has apparently failed to meet affirmative action and equal employment opportunity requirements after a reasonable period of notice to correct deficiencies, the Manager will, prior to imposition of any sanctions, afford the general contractor a hearing in order to determine whether the contractor or his subcontractors have failed to comply with the affirmative action and equal employment opportunity requirements of Article III, Division 2 of Chapter 28 of the Revised Municipal Code

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or of the contract. Written notice of such hearing shall be delivered personally or sent by certified mail, return receipt requested, to the contractor and to any subcontractor involved, at least ten (10) days prior to the date scheduled for the hearing.

### RULE III - HEARING

- A. Contractors will appear at hearings and may be represented by counsel, and may present testimony orally and other evidence.
- B. Hearings shall be conducted by one or more hearing examiners designated as such by the Manager.
- C. The Director of the Division of Small Business Opportunity may participate in hearings as a witness.
- D. Hearings shall be held at the place specified in the notice of hearing.
- E. All oral testimony shall be given under oath or affirmation and a record of such proceedings shall be made.
- F. All hearings shall be open to the public.
- G. The hearing officer shall make recommendations to the Manager who shall make a final decision.

### REGULATIONS

#### **REGULATION NO. 1 - ORDINANCE:**

The Rules and Regulations of the Manager shall be inserted in the bidding specifications for every contract for which bidding is required.

### **REGULATION NO. 2 - EXEMPTIONS:**

Each contract and subcontract, regardless of the dollar amount, shall be subject to affirmative action requirements unless specifically exempted in writing individually by the Manager. Exemptions apply only to "affirmative action" in equal employment opportunity, and are not to be construed as condonation in any manner of "discrimination" or "discriminatory practices" in employment because of race, color, creed, sex, age, national origin, religion, marital status, political opinion or mental or physical handicap.

### **REGULATION NO. 3 - DIRECTOR OF CONTRACT COMPLIANCE:**

The Director of the Division of Small Business Opportunity shall perform the duties assigned to such official by Article III, Division 2 Chapter 28 of the Revised Municipal Code and by the Manager. (1) The Director of the Division of Small Business Opportunity or designated representatives shall inform bidders and contractors of affirmative action procedures, programs, and goals in accordance with the Ordinance at prebid and pre-construction conference; (2) make regular on-site inspections; (3) supply contractors and subcontractors with report forms to be completed by them when requested, and furnished to the Director of the Division of Small Business Opportunity; and (4) review payroll records, employment records and practices of general contractors and their subcontractors and suppliers during the performance of any contract. The Director of the Division of Small Business Opportunity shall promptly report apparent affirmative action deficiencies to the Manager.

### **REGULATION NO. 4 - GOALS AND TIMETABLES:**

In general, goals and timetables should take into account anticipated vacancies and the availability of skills in the market place from which employees should be drawn. In addition, where discrimination in employment by a general contractor or any of his subcontractors is indicated, a corrective action program will take into account the need by the general contractor and his subcontractors to correct past discriminatory practices and reach goals of minority manpower utilization on a timely basis through such recruiting and advertising efforts as are necessary and appropriate.

## **REGULATION NO. 5 - AWARD OF CONTRACTS:**

It shall be the responsibility of the Director of the Division of Small Business Opportunity to determine the affirmative action capability of bidders, contractors and subcontractors and to recommend to the Manager the award of contracts to those bidders, contractors and subcontractors and suppliers who demonstrate the ability and willingness to comply with the terms of their contract.

### **REGULATION NO. 6 - PUBLICATION AND DUPLICATION:**

Copies of these Rules and Regulations as amended by the Manager from time to time, shall as soon as practicable and after Notice being published will be made a part of all City Contracts.

## **REGULATION NO. 7 - NOTICE TO PROCEED:**

Prior to issuance of the Notice to Proceed a sign-off will be required of the Director of the Division of Small Business Opportunity or his designee.

### **REGULATION NO. 8 - CONTRACTS WITH SUBCONTRACTORS:**

To the greatest extent possible, the contractor shall make a good faith effort to contract with minority contractors, subcontractors and suppliers for services and supplies by taking affirmative actions, which include but are not limited to the following:

- 1. Advertise invitations for subcontractor bids in minority community news media.
- 2. Contact minority contractor organizations for referral of prospective subcontractors.
- 3. Purchase materials and supplies from minority material suppliers.

## **REGULATION NO. 9 - AGENCY REFERRALS:**

It shall be no excuse that the union with which the contractor or subcontractor has an agreement providing for referral, exclusive or otherwise, failed to refer minority employees.

### **REGULATION NO. 10 - CLAUSES:**

The Manager shall include the appropriate clauses in every contract and the contractor shall cause to be inserted in every subcontract the appropriate clauses:

- 1. APPENDIX A: City and County of Denver Equal Opportunity Clause ALL CONTRACTS funded only with City and County of Denver monies.
- 2. APPENDIX B: Equal Opportunity Clause (11246) ALL FEDERAL ASSISTED.
- 3. APPENDIX C: Section 3 Assurance of Compliance HUD ASSISTED PROJECTS.
- 4. APPENDIX D: Section 3 Clause HUD ASSISTED PROJECTS.

All amendments to the appendices shall be included by reference.

### **REGULATION NO. 11 - SHOW CAUSE NOTICES:**

When the Manager has reasonable cause to believe that a contractor has violated Article III, Division 2 of Chapter 28 of the Denver Revised Municipal Code, he may issue a notice requiring the contractor to show cause, within fifteen (15) days why enforcement procedures, or other appropriate action to insure compliance, should not be instituted.

### **REGULATION NO. 12 - BID CONDITIONS - AFFIRMATIVE ACTION REQUIREMENTS - EQUAL EMPLOYMENT OPPORTUNITY:**

- 1. APPENDIX E: The Bid Conditions Affirmative Action Requirements Equal Employment Opportunity as amended and published by the U.S. Department of Labor Employment Standards Administration, Office of Federal Contract Compliance, shall be inserted verbatim for bidding specification for every non-exempt contract involving the use of Federal funds.
- 2. APPENDIX F: The Bid Conditions Affirmative Action Requirements Equal Employment Opportunity as published by the Department of Transportation and Infrastructure, City and County

of Denver, shall be inserted verbatim as bidding specifications for every non-exempt contract using City funds.

## APPENDIX A

## CITY AND COUNTY OF DENVER EQUAL OPPORTUNITY CLAUSE -ALL CONTRACTS

- 1. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex, age, national origin, religion, marital status, political opinion or affiliation, or mental or physical handicap. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, creed, color, sex, age, national origin, religion, marital status, political opinion or affiliation, or mental or physical handicap. 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, creed, color, sex, age, national origin, religion, marital status, political opinion or affiliation, or mental or physical handicap.
- 3. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided, advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- 4. Each Contractor will comply with all provisions of Article III, Division 2 of Chapter 28 of the Revised Municipal Code, and the rules, regulations, and relevant orders of the Manager and the Director.
- 5. The Contractor will furnish all information and reports required by Article III, Division 2 of Chapter 28 of the Revised Municipal Code, and by rules, regulations and orders of the Manager and Director or pursuant thereto, and will permit access to his books, records, and accounts by the Manager, Director, or their designee for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- 6. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said 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 City contracts in accordance with procedures authorized in Article III, Division 2, Chapter 28 of the Revised Municipal Code, or by rules, regulations, or order of the Manager.
- 7. The Contractor will include Regulation 12, Paragraph 2 and the provisions of paragraphs (1) through (6) in every subcontract of purchase order unless exempted by rules, regulations, or orders of the Manager issued pursuant to Article III, Division 2, Chapter 28 of the Revised Municipal Code, so that such provisions will be binding on each subcontractor or supplier. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance.

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The applicant further agrees to be bound by the above equal opportunity clauses with respect to its own employment practices when it participates in City contracts. The Contractor agrees to assist and cooperate actively with the Manager and the Director in obtaining compliance of subcontractors and suppliers with the equal opportunity clause and the rules, regulations and relevant orders of the Manager, and will furnish the Manager and the Director such information as they may require for the supervision of compliance, and will otherwise assist the Manager and Director in the discharge of the City's primary responsibility for securing compliance. The Contractor further agrees to refrain from entering into any contract or contract modification subject to Article III, Division 2 of Chapter 28 of the Revised Municipal Code with a contractor debarred from, or who has not demonstrated eligibility for, City contracts.

The Contractor will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the Manager and Director. In addition, the Contractor agrees that failure or refusal to comply with these undertakings the Manager may take any or all of the following actions:

- A. Cancellation, termination, or suspension in whole or in part of this contract.
- B. Refrain from extending any further assistance to the applicant under the program with respect to which the failure occurred until satisfactory assurance of future compliance has been received from such applicant.
- C. Refer the case to the City Attorney for appropriate legal proceedings.

**SUBCONTRACTS:** Each prime Contractor or Subcontractor shall include the equal opportunity clause in each of its subcontracts.

## **APPENDIX F**

## **AFFIRMATIVE ACTION REQUIREMENTS**

## EQUAL EMPLOYMENT OPPORTUNITY

For All Non-Exempt Construction Contracts to Be Awarded by the City and County of Denver, Department of Transportation and Infrastructure.

## NOTICE

EACH BIDDER, CONTRACTOR OR SUBCONTRACTOR (HEREINAFTER THE CONTRACTOR) MUST FULLY COMPLY WITH THE REQUIREMENTS OF THESE BID CONDITIONS AS TO EACH CONSTRUCTION TRADE IT INTENDS TO USE ON THIS CONSTRUCTION CONTRACT, AND ALL OTHER CONSTRUCTION WORK (BOTH CITY AND NON-CITY) IN THE DENVER AREA DURING THE PERFORMANCE OF THIS CONTRACT OR SUBCONTRACT. THE CONTRACTOR COMMITS ITSELF TO THE GOALS FOR MINORITY MANPOWER UTILIZATION, AS APPLICABLE, AND ALL OTHER REQUIREMENTS, TERMS AND CONDITION OF THESE BID CONDITIONS BY SUBMITTING A PROPERLY SIGNED BID.

THE CONTRACTOR SHALL APPOINT A COMPANY EXECUTIVE TO ASSUME THE RESPONSIBILITY FOR THE IMPLEMENTATION OF THE REQUIREMENTS, TERMS AND CONDITIONS OF THESE BID CONDITIONS.

\_/s/

Executive Director of Transportation and Infrastructure City and County of Denver

## A. REQUIREMENTS - AN AFFIRMATIVE ACTION PLAN:

Contractors shall be subject to the provisions and requirements of these bid conditions including the goals and timetables for minority\* and female utilization, and specific affirmative action steps set forth by the Office of Contract Compliance. The contractor's commitment to the goals for minority, and female utilization as required constitutes a commitment that it will make every good faith effort to meet such goals.

## 1. GOALS AND TIMETABLES:

The goals and timetables for minority and female participation, expressed in percentage terms for the contractor's aggregate workforce in each trade are as follows:

| GOALS FOR  | GOALS FOR  |
|--|--|
| MINORITY PARTICIPATION                             | FEMALE PARTICIPATION                               |
| FOR EACH TRADE                                     | FOR EACH TRADE                                     |
| From January 1, 1982<br>to<br>Until Further Notice | From January 1, 1982<br>to<br>Until Further Notice |
| 21.7% - 23.5%                                      | 6.9%   |

The goals for minority and female utilization above are expressed in terms of hours of training and employment as a proportion of the total number of hours to be worked by the contractor's aggregate workforce, which includes all supervisory personnel, in each trade, on all projects for the City and County of Denver during the performance of its contract (i.e., The period beginning with the first day of work on the City and County of Denver funded construction contract and ending with the last day of work).

The hours of minority and female employment and training must be substantially uniform throughout the length of the contract in each trade and minorities and females must be employed evenly on each of a contractor's projects. Therefore, the transfer of minority or female employees from contractor to contractor or from project to project for the purpose of meeting the contractor's goals shall be a violation of these Bid Conditions.

If the Contractor counts the nonworking hours of apprentices they must be employed by the Contractor during the training period; the Contractor must have made a commitment to employ apprentices at the completion of their training subject to the availability of employment opportunities; and the apprentices must be trained pursuant to training programs approved by the Bureau of Apprenticeship and Training.

\* "Minority" is defined as including, Blacks, Spanish Surname Americans, Asian Americans, and American Indians, and includes both men and minority women.

## 2. SPECIFIC AFFIRMATIVE ACTION STEPS:

No contractor shall be found to be in noncompliance solely on account of its failure to meet its goals, but will be given an opportunity to demonstrate that the contractor has instituted all the specific affirmative action steps specified and has made every good faith effort to make these steps work toward the attainment of its goals within the timetables, all to the purpose of expanding minority and female utilization in its aggregate workforce. A contractor, who fails to comply with its obligation under the Equal Opportunity Clause of its contract and fails to achieve its commitments to the goals for minority and female utilization has the burden of proving that it has engaged in an Affirmative Action Program directed at increasing minority and female utilization and that such efforts were at least as extensive and as specific as the following:

a. The Contractor should have notified minority and female organizations when employment opportunities were available and should have maintained records of the organization's response.

- b. The Contractor should have maintained a file of the names and addresses of each minority and female referred to it by any individual or organization and what action was taken with respect to each such referred individual, and if the individual was not employed by the Contractor, the reasons. If such individual was sent to the union hiring hall for referral and not referred back by the union or if referred, not employed by the Contractor, the file should have documented this and their reasons.
- c. The Contractor should have promptly notified the Department of Transportation and Infrastructure, and the Division of Small Business Opportunity when the union or unions with which the Contractor has collective bargaining agreements did not refer to the contractor a minority or female sent by the contractor, or when the Contractor has other information that the union referral process has impeded efforts to meet its goals.
- d. The Contractor should have disseminated its EEO policy within its organization by including it in any employee handbook or policy manual; by publicizing it in company newspapers and annual reports and by advertising such policy at reasonable intervals in union publications. The EEO policy should be further disseminated by conducting staff meetings to explain and discuss the policy; by posting of the policy; and by review of the policy with minority and female employees.
- e. The Contractor should have disseminated its EEO policy externally by informing and discussing it with all recruitment sources; by advertising in news media, specifically including minority and female news media; and by notifying and discussing it with all subcontractors.
- f. The Contractor should have made both specific and reasonably recurrent written and oral recruitment efforts. Such efforts should have been directed at minority and female organizations, schools with substantial minority and female enrollment, and minority and female recruitment and training organizations within the Contractor's recruitment area.
- g. The Contractor should have evidence available for inspection that all tests and other selection techniques used to select from among candidates for hire, transfer, promotion, training, or retention are being used in a manner that does not violate the OFCCP Testing Guidelines in 41 CFR Part 60-3.
- h. The Contractor should have made sure that seniority practices and job classifications do not have a discriminatory effect.
- i. The Contractor should have made certain that all facilities are not segregated by race.
- j. The Contractor should have continually monitored all personnel activities to ensure that its EEO policy was being carried out including the evaluation of minority and female employees for promotional opportunities on a quarterly basis and the encouragement of such employees to seek those opportunities.
- k. The Contractor should have solicited bids for subcontracts from available minority and female subcontractors engaged in the trades covered by these Bid Conditions, including circulation of minority and female contractor associations.
- NOTE: The Director and the Division of Small Business Opportunity will provide technical assistance on questions pertaining to minority and female recruitment sources, minority and female community organizations, and minority and female news media upon receipt of a request for assistance from a contractor.

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### **3.** NON - DISCRIMINATION:

In no event may a contractor utilize the goals and affirmative action steps required in such a manner as to cause or result in discrimination against any person on account of race, color, religion, sex, marital status, national origin, age, mental or physical handicap, political opinion or affiliation.

## 4. COMPLIANCE AND ENFORCEMENT:

In all cases, the compliance of a contractor will be determined in accordance with its obligations under the terms of these Bid Conditions. All contractors performing or to perform work on projects subject to these Bid Conditions hereby agree to inform their subcontractors in writing of their respective obligations under the terms and requirements of these Bid Conditions, including the provisions relating to goals of minority and female employment and training.

### **B.** CONTRACTORS SUBJECT TO THESE BID CONDITIONS:

In regard to these Bid Conditions, if the Contractor meets the goals set forth therein or can demonstrate that it has made every good faith effort to meet these goals, the Contractor shall be presumed to be in compliance with Article III, Division 2 of Chapter 28 of the Revised Municipal Code, the implementing regulations and its obligations under these Bid Conditions. In the event, no formal sanctions or proceedings leading toward sanctions shall be instituted unless the contracting or administering agency otherwise determines that the contractor is violating the Equal Opportunity Clause.

- 1. Where the Office of Contract Compliance finds that a contractor failed to comply with the requirements of Article III, Division 2 of Chapter 28 of the Revised Municipal Code or the implementing regulations and the obligations under these Bid Conditions, and so informs the Manager, the Manager shall take such action and impose such sanctions, which include suspension, termination, cancellation, and debarment, as may be appropriate under the Ordinance and its regulations. When the Manager proceeds with such formal action it has the burden of proving that the Contractor has not met the goals contained in these Bid Conditions. The Contractor's failure to meet its goals shall shift to it the requirement to come forward with evidence to show that it has met the good faith requirements of these Bid Conditions.
- 2. The pendency of such proceedings shall be taken into consideration by the Department of Transportation and Infrastructure in determining whether such contractor can comply with the requirements of Article III, Division 2 of Chapter 28 of the Revised Municipal Code, and is therefore a "responsible prospective contractor".
- 3. The Division of Small Business Opportunity shall review the Contractor's employment practices during the performance of the contract. If the Division of Small Business Opportunity determines that the Contractor's Affirmative Action Plan is no longer an acceptable program, the Director shall notify the Manager.

### C. OBLIGATIONS APPLICABLE TO CONTRACTORS:

It shall be no excuse that the union with which the Contractor has a collective bargaining agreement providing for exclusive referral failed to refer minority or female employees. Discrimination in referral for employment, even if pursuant to provisions of a collective bargaining agreement, is prohibited by the National Labor Relations Act, as amended, Title VI of the Civil Rights Act of 1964, as amended, and Article III, Division 2 of Chapter 28 of the Revised Municipal Code. It is the policy of the Department of Transportation and Infrastructure that contractors have a responsibility to provide equal employment opportunity, if they wish to participate in City and County of Denver contracts. To the extent they have delegated the responsibility for some of their employment practices to a labor organization and, as a result, are prevented from meeting their obligations pursuant to Article III, Division 2, Chapter 28 of the Revised Municipal Code, such Contractors cannot be considered to be in compliance with Article III, Division 2, Chapter 28 of the Revised Municipal Code, or its implementing rules and regulations.

## **D. GENERAL REQUIREMENTS:**

Contractors are responsible for informing their subcontractors in writing regardless of tier, as to their respective obligations. Whenever a Contractor subcontracts a portion of work in any trade covered by these

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Bid Conditions, it shall include these Bid Conditions in such subcontracts and each subcontractor shall be bound by these Bid Conditions to the full extent as if it were the prime contractor. The Contractor shall not, however, be held accountable for the failure of its subcontractors to fulfill their obligations under these Bid Conditions. However, the prime contractor shall give notice to the Director of any refusal or failure of any subcontractor to fulfill the obligations under these Bid Conditions. A subcontractor's failure to comply will be treated in the same manner as such failure by a prime contractor.

- 1. Contractors hereby agree to refrain from entering into any contract or contract modification subject to Article III, Division 2, Chapter 28 of the Revised Municipal Code with a contractor debarred from, or who is determined not to be a "responsive" bidder for the City and County of Denver contracts pursuant to the Ordinance.
- 2. The Contractor shall carry out such sanctions and penalties for violation of these Bid Conditions and the Equal Opportunity Clause including suspension, termination and cancellation of existing subcontracts and debarment from future contracts as may be ordered by the Manager pursuant to Article III, Division 2, Chapter 28 of the Revised Municipal Code and its implementing regulations.
- 3. Nothing herein is intended to relieve any contractor during the term of its contract from compliance with Article III, Division 2, Chapter 28 of the Revised Municipal Code, and the Equal Opportunity Clause of its contract with respect to matters not covered in these Bid Conditions.
- 4. Contractors must keep such records and file such reports relating to the provisions of these Bid Conditions as shall be required by the Office of Contract Compliance.
- 5. Requests for exemptions from these Bid Conditions must be made in writing, with justification, to the Manager of the Department of Transportation and Infrastructure, 201 W. Colfax, Dept. 608, Denver, Colorado 80202, and shall be forwarded through and with the endorsement of the Director.

# EXHIBIT C

## CITY AND COUNTY OF DENVER INSURANCE REQUIREMENTS FOR DEPARTMENT OF AVIATION OWNER CONTROLLED INSURANCE PROGRAM (OCIP/ROCIP) PROJECT

**NOTICE OF CHANGE TO ROCIP:** DEN reserves the right to terminate or modify the DEN ROCIP or any portion thereof. Further, dependent on factors including, but not limited to, the official timing and duration of the ROCIP project for which services are provided under this Agreement, DEN may need to transition from one ROCIP program to another and introduce corresponding requirements for contractors. DEN will provide Contractor notice in accordance with the terms and conditions of this Agreement.

## 1. General Information

City and County of Denver and Denver International Airport (hereinafter referred to collectively as "DEN") has arranged for certain construction activities at DEN to be insured under an Owner Controlled Insurance Program (OCIP) or a Rolling Owner Controlled Insurance Program (ROCIP) (hereinafter collectively referred to as "ROCIP"). A ROCIP is a single insurance program that insures DEN, the Contractor and subcontractors of any tier, and other designated parties (Enrolled Parties), for work performed at the Project Site. Certain trade contractors and subcontractors are ineligible for this program; see ROCIP Insurance Manual Section 4. Insurance requirements are determined based on the scope of work.

## 1.2 ROCIP Manuals

Below are links to access the current reference manuals related to DEN ROCIP. These manuals are part of the Contract Documents.

ROCIP Insurance Manual ROCIP Safety Manual ROCIP Claims Guide

## 2. Insurance Requirements for Non-ROCIP Contractors and Subcontractors (Ineligible Parties)

Contractor and subcontractors of any tier shall require all Ineligible Parties, as defined in ROCIP Insurance Manual Section 4 or confirmed as excluded by DEN, to provide and maintain insurance of the type and in limits as set forth in the Contractor Subcontract Agreement and such insurance shall include the minimum defined coverages and be evidenced to DEN as required in this Section 2.

2.1 Certificate Holder

Certificate(s) shall be issued to:

CITY AND COUNTY OF DENVER Denver International Airport 8500 Peña Boulevard, Suite 8810 Denver CO 80249 Attn: Risk Management

2.2 Acceptable Certificate of Insurance Form and Submission Instructions

Please read these requirements carefully to ensure proper documentation and receipt of your certificate(s) of insurance.

- ACORD FORM (or equivalent) certificate is required.
- SUBMIT via emailed in pdf format to: <u>DENCOI@flydenver.com</u>
- ELECTRONIC CERTIFICATES are required, hard copy documents will not be accepted.

- THIRD PARTY SOFTWARE may be implemented during the term of this Agreement to manage insurance compliance and documents with required use by Vendor of such system.
- REFERENCE on the certificate must include the DEN assigned Contract Number.
- 2.3 Coverage and Limits
  - 2.3.1 Commercial General Liability

Contractor shall maintain insurance coverage including bodily injury, property damage, personal injury, advertising injury, independent contractors, and products and completed operations in minimum limits of \$1,000,000 each occurrence, \$2,000,000 products and completed operations aggregate; if policy contains a general aggregate, a minimum limit of \$2,000,000 annual aggregate must be maintained.

- 2.3.1.1 Coverage shall include Contractual Liability covering liability assumed under this Agreement (including defense costs assumed under contract) within the scope of coverages provided.
- 2.3.1.2 Coverage shall include Mobile Equipment Liability, if used to perform services under this Agreement.
- 2.3.2 Business Automobile Liability

Contractor shall maintain a minimum limit of \$1,000,000 combined single limit each occurrence for bodily injury and property damage for all owned, leased, hired and/or non-owned vehicles used in performing services under this Agreement.

- 2.3.2.1 If operating vehicles unescorted airside at DEN, a \$10,000,000 combined single limit each occurrence for bodily injury and property damage is required.
- 2.3.2.2 If Contractor does not have blanket coverage on all owned and operated vehicles and will require unescorted airside driving privileges, then a schedule of insured vehicles (including year, make, model and VIN number) must be submitted with the Certificate of Insurance.
- 2.3.2.3 If transporting waste, hazardous material, or regulated substances, Contractor shall carry a Broadened Pollution Endorsement and an MCS 90 endorsement on its policy.
- 2.3.2.4 If Contractor does not own any fleet vehicles and Contractor's owners, officers, directors, and/or employees use their personal vehicles to perform services under this Agreement, Contractor shall ensure that one or both of the following coverages are maintained as appropriate: (i) Personal Automobile Liability including a Business Use Endorsement by the vehicle owner and (ii) Non-Owned Auto Liability by the Contractor.
- 2.3.2.5 If Contractor will be completing all services to DEN under this Agreement remotely and not be driving to locations under direction of the City to perform services, this requirement is waived.
- 2.3.3 Workers' Compensation and Employer's Liability Insurance

Contractor shall maintain the coverage as required by statute for each work location and shall maintain Employer's Liability insurance with limits no less than \$1,000,000 per occurrence for each bodily injury claim, \$1,000,000 per occurrence for each bodily injury caused by disease claim, and \$1,000,000 aggregate for all bodily injuries caused by disease claims.

- 2.3.3.1 Colorado Workers' Compensation Act allows for certain, limited exemptions from Worker's Compensation insurance coverage requirements. It is the sole responsibility of the Contractor to determine their eligibility for providing this coverage, executing all required documentation with the State of Colorado, and obtaining all necessary approvals. Verification document(s) evidencing exemption status must be submitted with the Certificate of Insurance.
- 2.3.4 Professional Liability (Errors and Omissions) Insurance

Contractor shall maintain a minimum limit of \$1,000,000 each claim and policy aggregate, providing coverage for applicable services outlined in this Agreement. If there are no applicable professional services, this coverage will not be required.

The Contractor shall be responsible for conferring with DEN Risk Management on any subcontractors providing work to the Project to obtain a formal determination if this coverage will be required.

2.3.5 Contractor's Pollution Legal Liability

If required by DEN Risk Management for any specific Excluded Party based on their scope of work, Contractor shall maintain coverage for its work site operations that are conducted on DEN's premises including project management and site supervision duties with a limit no less than \$1,000,000 each occurrence and aggregate resulting from claims arising out of a pollution condition or site environmental condition resulting out of work site operations on DEN's premises.

- 2.3.5.1 Coverage shall include claims/losses for bodily injury, property damage including loss of use of damaged property, defense costs including costs and expenses incurred in the investigation, defense or settlement of claims, and cleanup cost for pollution conditions resulting from illicit abandonment, the discharge, dispersal, release, escape, migration or seepage of any sold, liquid, gaseous or thermal irritant, contaminant, or pollutant, including soil, silt, sedimentation, smoke, soot, vapors, fumes, acids, alkalis, chemicals, electromagnetic fields, hazardous substances, hazardous materials, waste materials, low level radioactive waste, mixed wastes, on, in, into, or upon land and structures thereupon, the atmosphere, surface water or groundwater on the DEN premises.
- 2.3.5.2 Work site means a location where covered operations are being performed, including real property rented or leased from DEN for the purpose of conducting Contractor's covered operations.

The Contractor shall be responsible for conferring with DEN Risk Management on any subcontractors providing work to the Project to obtain a formal determination if this coverage will be required.

2.3.6 Cyber Liability

If required by DEN Risk Management for any specific Excluded Party based on their scope of work, Contractor shall maintain a minimum limit of \$1,000,000 per occurrence and \$1,000,000 annual policy aggregate covering claims involving privacy violations, information theft, damage to or destruction of electronic information, intentional and/or unintentional release of private information, alteration of electronic information, extortion, and network security.

The Contractor shall be responsible for conferring with DEN Risk Management on any subcontractors providing work to the Project to obtain a formal determination if this coverage will be required.

- 2.3.7 Technology Errors and Omissions, Network Security, and Privacy Liability (Cyber): If required by DEN Risk Management for any specific Excluded Party based on their scope of work, Contractor shall maintain a limit no less than \$1,000,000 each claim and aggregate; \$1,000,000 each claim and aggregate for cyber extortion; and no less than \$250,000 each claim for invoice manipulation and email spoofing.
  - 2.3.7.1 Coverage shall include, but not be limited to, liability arising from theft, dissemination and/or use of personal, private, confidential, information subject to a non-disclosure agreement, including information stored or transmitted, privacy or cyber laws, damage to or destruction of information, intentional and/or unintentional release of private information, alteration of information, extortion and network security, introduction of a computer virus into, or otherwise causing damage to, a customer's or third person's computer, computer system, network or similar computer related property and the data, software, and programs thereon, advertising injury, personal injury (including invasion of privacy) and intellectual property offenses related to internet.

The Contractor shall be responsible for conferring with DEN Risk Management on any subcontractors providing work to the Project to obtain a formal determination if this coverage will be required.

2.3.8 Unmanned Aerial Vehicle (UAV) Liability

If Contractor desires to use drones in any aspect of its work on DEN premises, the following requirements must be met prior to commencing any drone operations:

- 2.3.8.1 Express written permission must be granted by DEN.
- 2.3.8.2 Express written permission must be granted by the Federal Aviation Administration (FAA).
- 2.3.8.3 Drone equipment must be properly registered with the FAA.
- 2.3.8.4 Drone operator(s) must be properly licensed by the FAA.
- 2.3.8.5 Contractor must maintain UAV Liability including flight coverage, personal and advertising injury liability, and hired/non-owned UAV liability for its commercial drone operations with a limit no less than \$1,000,000 combined single limit each occurrence for bodily injury and property damage.
- 2.3.9 Excess/Umbrella Liability

Combination of primary and excess coverage may be used to achieve minimum required coverage limits. Excess/Umbrella policy(ies) must follow form of the primary policies with which they are related to provide the minimum limits and be verified as such on any submitted Certificate of Insurance.

2.4 Reference to Project and/or Contract

The DEN Project and/or Contract Number and project description shall be noted on the Certificate of Insurance.

2.5 Additional Insured

For all coverages required under this Agreement (excluding Workers' Compensation and Professional Liability, if required), Contractor's insurer(s) shall include the City and County of Denver, its elected and appointed officials, successors, agents, employees and volunteers as Additional Insureds by policy endorsement.

### 2.6 Waiver of Subrogation

For all coverages required under this Agreement (excluding Professional Liability, if required), Contractor's insurer(s) shall waive subrogation rights against the City and County of Denver, its elected and appointed officials, successors, agents, employees and volunteers by policy endorsement.

If Contractor will be completing all services to the City under this Agreement remotely and not be traveling to locations under direction of the City to perform services, this requirement is waived specific to Workers' Compensation coverage.

2.7 Notice of Material Change, Cancellation or Nonrenewal

Each certificate and related policy shall contain a valid provision requiring notification to the Certificate Holder in the event any of the required policies be canceled or non-renewed or reduction in required coverage before the expiration date thereof.

- 2.7.1 Such notice shall reference the DEN assigned contract number related to this Agreement.
- 2.7.2 Said notice shall be sent thirty (30) days prior to such cancellation, non-renewal or reduction in coverage unless due to non-payment of premiums for which notice shall be sent ten (10) days prior.
- 2.7.3 If such written notice is unavailable from the insurer or afforded as outlined above, Contractor and/or it is insurance broker/agent shall provide written notice of cancellation, non-renewal and any reduction in coverage to the Certificate Holder within seven (7) business days of receiving such notice by its insurer(s) and include documentation of the formal notice received from its insurer(s) as verification. Contractor shall replace cancelled or nonrenewed policies with no lapse in coverage and provide an updated Certificate of Insurance to DEN.
- 2.7.4 In the event any general aggregate or other aggregate limits are reduced below the required minimum per occurrence limits, Contractor will procure, at its own expense, coverage at the requirement minimum per occurrence limits. If Contractor cannot replenish coverage within ten (10) calendar days, it must notify the City immediately.
- 2.8 Cooperation

Contractor agrees to fully cooperate in connection with any investigation or inquiry and accept any formally tendered claim related to this Agreement, whether received from the City or its representative. Contractor's failure to fully cooperate may, as determined in the City's sole discretion, provide cause for default under the Agreement. The City understands acceptance of a tendered claim does not constitute acceptance of liability.

- 2.9 Additional Provisions
  - 2.9.1 Deductibles or any type of retention are the sole responsibility of the Contractor.
  - 2.9.2 Defense costs shall be in addition to the limits of liability. If this provision is unavailable that limitation must be evidenced on the Certificate of Insurance.
  - 2.9.3 Coverage required may not contain an exclusion related to operations on airport premises.
  - 2.9.4 A severability of interests or separation of insureds provision (no insured vs. insured exclusion) is included under any policy requiring Additional Insured status.
  - 2.9.5 A provision that coverage is primary and non-contributory with other coverage or self-insurance maintained by DEN, excluding Professional Liability and Workers' Compensation policies, if required.

- 2.9.6 The insurance requirements under this Agreement shall be the greater of (i) the minimum limits and coverage specified hereunder or (ii) the broader coverage and maximum limits of coverage of any insurance policy or proceeds available to the Contractor. It is agreed that the insurance requirements set forth herein shall not in any way act to reduce coverage that is broader or that includes higher limits than the minimums set forth in this Agreement.
- 2.9.7 All policies shall be written on an occurrence form when available and industry norm. If an occurrence form is unavailable and/or the industry norm, claims-made coverage may be accepted by DEN provided the retroactive date is on or before the Agreement Effective Date or the first date when any goods or services were provided to DEN, whichever is earlier, and continuous coverage will be maintained or an extended discovery period of three years beginning at the time work under this Agreement is completed or the Agreement is terminated, whichever is later.
- 2.9.8 Certificates of Insurance must specify the issuing companies, policy numbers and policy periods for each required form of coverage. The certificates for each insurance policy are to be signed by an authorized representative and must be submitted to the City at the time Contractor signed this Agreement.
- 2.9.9 The insurance shall be underwritten by an insurer licensed or authorized to do business in the State of Colorado and rated by A.M. Best Company as A- VIII or better.
- 2.9.10 Certificate of Insurance and Related Endorsements: The City's acceptance of a certificate of insurance or other proof of insurance that does not comply with all insurance requirements shall not act as a waiver of Contractor's breach of this Agreement or of any of the City's rights or remedies under this Agreement. All coverage requirements shall be enforced unless waived or otherwise modified in writing by DEN Risk Management. Contractor is solely responsible for ensuring all formal policy endorsements are issued by their insurers to support the requirements.
- 2.9.11 The City shall have the right to verify, at any time, all coverage, information, or representations, and the insured and its insurance representatives shall promptly and fully cooperate in any such audit the City may elect to undertake including provision of copies of insurance policies upon request. In the case of such audit, the City may be subject to a non-disclosure agreement and/or redactions of policy information unrelated to the required coverage and premium amounts.
- 2.9.12 No material changes, modifications, or interlineations to required insurance coverage shall be allowed without the review and written approval of DEN Risk Management.
- 2.9.13 Contractor shall be responsible for ensuring the City is provided updated Certificate(s) of prior to each policy renewal.
- 2.9.14 Contractor's failure to maintain required insurance shall be the basis for immediate suspension and cause for termination of this Agreement, at the City's sole discretion and without penalty to the City.
- 2.10 Part 230 and the DEN Airport Rules and Regulations

If the minimum insurance requirements set forth herein differ from the equivalent types of insurance requirements in Part 230 of the DEN Airport Rules and Regulations, the greater and broader insurance requirements shall supersede those lesser requirements, unless expressly excepted in writing by DEN Risk Management.

## 3. Insurance Requirements for ROCIP Enrolled Contractors and Subcontractors

3.1 Insurance Provided by the DEN ROCIP

DEN retains the right to have this Project insured under a ROCIP. ROCIP coverage shall provide: (i) Commercial General Liability, (ii) Workers' Compensation & Employer's Liability, (iii) Excess Liability, (iv) Contractor's Pollution Liability, and (v) Builder's Risk as outlined herein and as defined by the respective policies for each coverage, for the period from the start of Work through completion and final acceptance by DEN except as otherwise provided herein.

## 3.2 Enrollment Required

Parties performing labor or services at the Project Site are eligible to enroll in the DEN ROCIP, unless they are Ineligible Parties (as defined in ROCIP Insurance Manual Section 4). Participation is mandatory but not automatic. Parties eligible for enrollment shall follow the procedures and follow the instructions as provided in the DEN ROCIP Insurance Manual to enroll in the program. When the Contractor and subcontractors of any tier are properly enrolled, the DEN ROCIP Administrator will issue a Certificate of Insurance evidencing the coverages afforded to each Enrolled Party under the DEN ROCIP, prior to their commencing Work on the Project Site.

3.3 Exclusion of Contractor/Subcontractor Insurance Costs from Proposal and Bid Prices

Contractor shall exclude from Contractor's cost of work and ensure that each subcontractor of any tier exclude from their cost of work, normal costs for insurance for those coverages provided under the DEN ROCIP. As part of the enrollment process, Contractor and subcontractors shall provide policy declaration rate pages and deductible endorsements on the General Liability, Workers' Compensation, and Excess Liability policies as required in the DEN ROCIP Insurance Manual. The calculation of these costs will be determined by the ROCIP Program Administrator. The costs of DEN ROCIP coverage includes reductions in insurance premiums, all relevant taxes and assessments, markup on insurance premiums, and losses retained through large deductibles, self-insured retentions, or self-funded programs. Change orders shall also exclude the cost of ROCIP coverage.

Pre-employment substance abuse testing costs will be covered by DEN and should be removed from bid prices. Drug testing will be more thoroughly discussed in the ROCIP Safety Manual.

3.4 Insurance Premiums

DEN will pay the insurance premiums for the DEN ROCIP insurance policies. DEN is responsible for all adjustments to the premiums and will be the sole beneficiary of all dividends, retroactive adjustments, return premiums, and any other monies due through audits or otherwise. The Contractor assigns to DEN the right to receive all such adjustments and will require that each subcontractor of any tier assign to DEN all such adjustments. The Contractor and the subcontractors who are Enrolled Parties shall execute such further documentation as may be required by DEN to accomplish this assignment.

3.5 Off Site Operations Coverage Under ROCIP

The DEN ROCIP will provide certain insurance coverage for DEN, Contractor and Enrolled Parties, along with their Eligible Employees performing Work at the Project Site. Off-site operations shall be covered only if designated in writing by DEN and when all operations at such site are identified and solely dedicated to the Project. Contractors and subcontractors are responsible to notify the DEN ROCIP Administrator in writing, to request coverage for specified off-site operations. Coverage is not provided at the off-site location unless confirmed in writing by the DEN ROCIP Administrator.

## 3.6 DEN ROCIP Insurance Manual

As soon as practicable, the DEN ROCIP Insurance Manual will be sent to each Enrolled Party and will become a part of the Contract and Contractor's Subcontract with its subcontractor and its subcontractors' agreements with any lower-tier subcontractor. The DEN ROCIP Insurance Manual will contain the administrative and claim reporting procedures. Contractor agrees to and will require that its subcontractors of any tier to cooperate with the DEN ROCIP Administrator in providing all required information.

## 3.7 Conflicts

Descriptions of the DEN ROCIP coverages set forth in ROCIP Insurance Manual Section 4.6 are not intended to be complete or meant to alter or amend any provision of the DEN ROCIP insurance policies. The DEN ROCIP coverages, terms, conditions, and exclusions are set forth in full in their respective policy forms. In the event of a conflict or omission between the coverages provided in the DEN ROCIP insurance Manual, this Exhibit or elsewhere in the Contract Documents, the DEN ROCIP insurance policies shall govern. In the event of a conflict between the provisions of this Exhibit and the DEN ROCIP Insurance Manual, that does not involve any conflict with the provisions of the DEN ROCIP insurance policies, the provisions of this Exhibit shall govern.

- 3.8 ROCIP Insurance Coverage Provided to Enrolled Parties
  - 3.8.1 Insurance Provided by DEN

Unless otherwise provided herein, prior to commencement of the Work, DEN, at its sole option and expense, shall secure and maintain at all times during the performance of this Contract the insurance specified below, insuring DEN, Enrolled Parties and such other persons or interests as DEN may designate with limits not less than those specified below for each coverage.

3.8.1.1 Workers' Compensation & Employer's Liability – On Site Only

DEN shall maintain the coverage as required by statute for the Project Site and shall maintain Employer's Liability insurance with limits no less than \$1,000,000 per occurrence for each bodily injury claim, \$1,000,000 per occurrence for each bodily injury caused by disease claim, and \$1,000,000 aggregate for all bodily injuries caused by disease claims.

3.8.1.2 Commercial General Liability – On Site Only

DEN shall maintain insurance coverage including bodily injury, property damage, personal injury, advertising injury, and products and completed operations in minimum limits as listed below:

| Coverage                                      | Limit        |
|---|--------------|
| Annual General Aggregate                      |              |
| (Per Project and Reinstates Annually)         | \$4,000,000  |
| Products/Completed Operations Aggregate       | \$4,000,000  |
| (Per Project and Statute of Repose)           |              |
| Total Products/Completed Operations Aggregate | \$20,000,000 |
| (Statute of Repose)                           |              |
| Personal / Advertising Injury Limit           | \$2,000,000  |
| Each Occurrence Limit                         | \$2,000,000  |
| Fire Damage Legal Liability (any one fire)    | \$ 300,000   |
| Medical Payments (any one person)             | \$ 10,000    |

## 3.8.1.3 Excess Liability Insurance

DEN shall maintain coverage following form with underlying policies of Commercial General Liability and Employer's Liability in minimum limits as listed below:

| Coverage  | Limit         |
|---|---------------|
|   |               |
| Annual General Aggregate                                      |               |
| (Per Project and Reinstates Annually)                         | \$200,000,000 |
| Products/Completed Operations Aggregate<br>(Per Project)      | \$20,000,000  |
| Total Products/Completed Operations Aggregate<br>(Policy Cap) | \$400,000,000 |
| Each Occurrence Limit   | \$200,000,000 |

DEN, in its sole discretion, may elect to provide higher limits, based on Project size. Excess Liability limits are shared by all Insured parties.

## 3.8.1.4 Contractor's Pollution Liability

DEN shall maintain coverage for bodily injury, property damage, or environmental damage caused by a pollution event resulting from covered operations, including completed operations, at the Project Site with a limit no less than \$10,000,000 each occurrence and aggregate. Coverage includes microbial matter and legionella pneumophila in any structure on land and the atmosphere contained with the structure. Products/Completed Operations coverage may extend for the statute of limitations/repose after final completion of the Project.

## 3.8.1.5 Builder's Risk Insurance

DEN shall maintain, Builder's Risk (and/or Installation Floater) in the amount of \$200,000,000 per occurrence subject to various sublimits (as defined in the Builders' Risk Policy). Such insurance shall end when the first of the following occurs: 1) DEN's interest in the Work ceases; 2) the policy expires or is cancelled; or 3) the Work is accepted by DEN.

Builder's Risk Insurance limits are shared by all insured parties and shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss of damage including, theft, vandalism, malicious mischief, terrorism, rigging and hoisting for materials and equipment that are part of the Project, collapse, earthquake, flood, windstorm, falsework, testing and startup (as provided by the policy), temporary buildings and debris removal including demolition occasioned by enforcement of any applicable ordinance laws, and shall cover reasonable compensation for services and expenses required as a result of such insured loss.

This Builder's Risk Insurance shall cover portions of the Work stored off site, and also portions of the Work in transit.

DEN and Contractor shall waive all rights against (1) each other and any of their subcontractors of any tier, and all respective agents and employees, and (2) the architect, architect's consultants, separate contractors, if any, and any of their subcontractors of any tier, and all respective agents and employees, for damages caused by fire or other causes of loss to the extent covered by Builder's Risk Insurance obtained pursuant to this Section or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by DEN as fiduciary. DEN or Contractor, as appropriate, shall require of the architect, architect's consultants, separate contractors, and their subcontractors of any tier, and all respective agents and employees, by appropriate agreements, written where

legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

## 3.8.2 Claim Chargeback

A claim charge-back will be assessed, regardless of fault, for the amount of any loss payable under this program with the exception of Workers' Compensation and Excess Liability, up to a maximum of \$25,000 each loss. General Contractor may elect to pass no more than \$5,000 of this charge, each loss, through to any responsible subcontractor.

3.9 Other Insurance Provided By Enrolled Parties

At their own expense, the Enrolled Parties of all tiers must carry the following minimum coverage and limits and such insurance shall be evidenced to DEN and the DEN ROCIP Administrator as required in this Section 3.9.

3.9.1 Certificate Holder

Certificate(s) shall be issued to:

CITY AND COUNTY OF DENVER Denver International Airport 8500 Peña Boulevard, Suite 8810 Denver CO 80249 Attn: Risk Management

and

CITY AND COUNTY OF DENVER Department of Aviation c/o Marsh USA, Inc. 111 SW Columbia, Ste 500 Portland, OR 97201

3.9.2 Acceptable Certificate of Insurance Form and Submission Instructions

Please read these requirements carefully to ensure proper documentation and receipt of your certificate(s) of insurance.

- ACORD FORM (or equivalent) certificate is required.
- SUBMIT via emailed in pdf format to: DENCOI@flydenver.com

and DenverAirport.ROCIP@marsh.com

- ELECTRONIC CERTIFICATES are required, hard copy documents will not be accepted.
- THIRD PARTY SOFTWARE may be implemented during the term of this Agreement to manage insurance compliance and documents with required use by Vendor of such system.
- REFERENCE on the certificate must include the DEN assigned Contract Number.
- 3.9.3 Other Insurance Requirements

Enrolled Contractors shall adhere to the same minimum insurance requirements as stated in Section 2 of this exhibit, with the following exceptions:

• Commercial General Liability coverage requirement is Off Site Only

- Workers' Compensation and Employer's Liability coverage requirement is Off Site Only
- Contractor's Pollution Legal Liability is not required

## 4. Contractor Warranties and Agreements

4.1 Accuracy of Contractor-provided Information

Contractor warrants that all information submitted to DEN or the DEN ROCIP Administrator is accurate and complete to the best of its knowledge. Contractor will notify DEN or the DEN ROCIP Administrator immediately in writing of any errors discovered during the performance of the Work.

4.2 Contractor Responsible to Review Coverage

Contractor acknowledges that all references to DEN ROCIP policy terms, conditions, and limits of liability in this document, as well as the DEN ROCIP Insurance Manual, are for reference only. Contractor and its subcontractors of any tier are responsible for conducting their own independent review and analysis of the DEN ROCIP insurance policies in formulating any opinion or belief as to the applicability of such coverage in the event of any loss or potential claim. Any type of insurance or increase of limits not described above, which the Contractor requires for its own protection or on account of statute, shall be its own responsibility and at its own expense.

4.3 Audit

Contractor agrees to make its records available for review and to cooperate with DEN, its insurers and insurance brokers, the City Auditor, and representatives of the aforesaid parties in the event of an audit. In the event that a DEN audit of Contractor's records, as permitted in the Contract or other DEN ROCIP documents, reveals a discrepancy in the insurance, payroll, safety, or any other information required to be provided to DEN or the DEN ROCIP Administrator, or reveals inclusion of costs for DEN ROCIP coverage or other coverage beyond what is described above in any payment for the Work, DEN will have the right to deduct from payments due Contractor all such insurance costs as well as all audit costs.

4.4 Insurance Costs Removed

Contractor warrants that the costs for insurance as provided under the DEN ROCIP were not included in Contractor's bid or proposal for the Work, the Contract Price/Contract Sum, and will not be included in any change order or any request for payment for the Work or extra work.

## 5. Contractor Obligations

5.1 ROCIP Documents Shall be Provided to Subcontractor

Contractor shall furnish each bidding subcontractor, vendor, supplier, material dealer or other party a copy of this Exhibit, the DEN ROCIP Insurance Manual and the DEN ROCIP Safety Manual and shall incorporate the terms of this Exhibit in all contracts and agreements entered into for performance of any portion of the Work.

5.2 Timely Enrollment Required

Contractor shall enroll in the DEN ROCIP within five (5) business days following a request by DEN or the DEN ROCIP Administrator. Contractor shall notify each subcontractor of the process for enrolling in DEN ROCIP and confirm that enrollment is mandatory, but not automatic. Contractor shall assure that subcontractors of any tier shall not commence Work until verification of enrollment is confirmed by the DEN ROCIP Administrator by the issuance of a Certificate of Insurance to each individual Enrolled Party.

## 5.3 Compliance with Conditions

Contractor shall not violate any condition of the policies of insurance provided by DEN under the terms of this Exhibit, the DEN ROCIP Insurance Manual or the DEN ROCIP Safety Manual. All requirements imposed by the subject policies and to be performed by Contractor shall likewise be imposed on, assumed, and performed by each subcontractor of any tier.

### 5.4 Claims Cooperation

Contractor shall participate in claim reporting procedures. Contractor agrees to assist and cooperate in every manner possible in connection with the adjustment of all claims arising out of operations within the scope of the Work required by the Contract, and to cooperate with DEN's insurer(s) in all claims and demands which DEN's insurer(s) is called upon to adjust or to defend against. Contractor shall take all necessary action to assure that its subcontractors of any tier comply with any request for assistance and cooperation. This obligation includes, without limitation, providing light or modified duty for injured workers, appearing in mediation, arbitration, or court proceedings and/or participating in settlement meetings, as may be required.

### 5.5 Monthly Payroll Submission

All Enrolled Parties shall submit monthly payrolls and worker-hour reports to DEN and/or the DEN ROCIP Administrator via the DEN ROCIP Administrator's online reporting system as outlined in the DEN ROCIP Insurance Manual. The online reporting instructions will be provided to all Contractors at time of enrollment. Failure to submit these reports may result in funds being held or delayed from monthly progress payments. Payroll must be submitted online for each month, including zero (0) payroll, if applicable, until completion of the Work under each Contract and Subcontract. For subcontractors of any tier performing Work under multiple Subcontracts, a separate payroll report is required for each Subcontract under which Work is being performed.

5.6 Response to Information Requests

All insurance underwriting, payroll, rating or loss history information requested by DEN or the DEN ROCIP Administrator shall be provided by the Contractor within three (3) business days of request. Contractor agrees (and will require each subcontractor to agree) that DEN, DEN's insurers or its representative may audit the Contractor's records or records of subcontractors of any tier to confirm the accuracy of all insurance information provided including, without limitation, any such information that may have any effect on insurance resulting from changes in the Work. At all times during performance of the Contract and Subcontracts, the Contractor and subcontractors of any tier shall cooperate with DEN, the DEN ROCIP Administrator and DEN's insurers.

5.7 Responsibility for Safety

Notwithstanding the DEN ROCIP, the Contractor shall initiate, maintain, and supervise all safety precautions and programs in connection with the Work. Contractor is solely responsible, at no adjustment to the contract sum payable or contract time, for initiating, maintaining, and supervising all safety precautions and programs relating to the conduct of Work including, without limitation, any safety programs or procedures that are required by any applicable state or federal laws, rules or regulations, or under the terms of the DEN ROCIP Safety Manual.

5.8 Duty of Care

Nothing herein shall relieve the Enrolled Parties of their respective obligations to exercise due care in the performance of their duties in connection with the Work or to complete the Work in strict compliance with this Contract and subsequent subcontracts.

## 6. Notices and Costs

6.1 Limitations on DEN Provided Coverage and DEN Right to Purchase Other Coverage

DEN assumes no obligations to provide insurance other than that evidenced by the policies referred to in Section 3.8. DEN, however, reserves the right to furnish insurance coverage of various types and limits provided that such coverage shall not be less than that specified in Section 3.8 and the costs of such insurance shall be paid by DEN. Apart from the DEN ROCIP, DEN may at its option purchase additional insurance coverages that insure the Project that may not necessarily insure the Contractor or the subcontractors. Without limitation, examples of such coverage may include pollution liability, excess professional liability, and excess automobile liability insurance.

6.2 Contractors Responsible for Own Equipment

Contractor and subcontractors are solely responsible for loss or damage of all construction tools and other equipment whether owned, leased, rented, borrowed, or used on Work at the Project Site. If an individual Enrolled Party purchases insurance on their tools and equipment, such insurance shall contain a waiver of subrogation in favor of the City and County of Denver, its elected and appointed officials, agents, employees and volunteers and all other Enrolled Parties. If an individual Enrolled Party does not purchase such insurance, that Enrolled Party will hold harmless the City and County of Denver, its elected and appointed officials, agents, employees and volunteers and volunteers and other Enrolled Parties for loss or damage to its tools and equipment.

6.3 No Release; No Waiver of Immunity

The provision of the DEN ROCIP shall in no way be interpreted as relieving Contractor or subcontractors of any tier of any responsibility or liability under the Contract Documents, the DEN ROCIP insurance policies or applicable laws including, without limitation, Contractor's and subcontractor's responsibilities relative to indemnification and their obligation to exercise due care in the performance of the Work and to complete the Work in strict compliance with the Contract Documents. The parties hereto understand and agree that the City and County of Denver, its elected and appointed officials, agents, employees and volunteers are relying on, and do not waive or intend to waive by any provisions of this agreement, the monetary limitations or any other rights, immunities and protections provided by the Colorado Governmental Immunity Act, §§ 24-10-101 to 120, C.R.S., or otherwise available to DEN, its officers, officials and employees.

6.4 DEN Right to Withhold Payments

In addition to any other rights of withholding that DEN may have under the Contract Documents, DEN has the right to withhold any payments otherwise due to Contractor in the event of a failure by Contractor or any subcontractor to comply with the requirements of this Exhibit, the DEN ROCIP Insurance Manual or the DEN ROCIP Safety Manual. DEN may withhold from any payment owing to Contractor the costs of DEN ROCIP coverages if included in a request for payment. Such withholding by DEN shall not be deemed to be a default under the Contract. DEN shall withhold from Contractor the costs of DEN ROCIP coverages in an Enrolled Party's total payroll for the Work over the amount reported to DEN and/or the DEN ROCIP Administrator at time of enrollment.

6.5 DEN Remedies

Without limitation upon any of DEN's other rights or remedies, any failure of an Enrolled Party to comply with any provision of this Exhibit, the DEN ROCIP Insurance Manual, or the DEN ROCIP Safety Manual shall be deemed a material breach of the Contract, thereby entitling DEN, at its option, upon notice to Contractor, to (1) suspend performance by Contractor and/or the offending subcontractor, without any adjustment to Contract Sum Payable or Contract Time, until there is full compliance, or (2) terminate this Contract for cause.

### 6.6 Off Site Storage

Unless otherwise provided in the Contract Documents, the property insurance provided by DEN shall not cover portions of the Work stored off the Site without written approval of DEN. Contractor shall be responsible for reporting such property or work if ownership has been transferred to DEN. If ownership rests with the Contractor, Contractor shall be responsible for obtaining insurance to protect its interests.

### 6.7 Partial Occupancy

Partial occupancy or use shall not commence until DEN insurer(s) providing Builders Risk and/or Property Insurance have consented to such partial occupancy or use by endorsement or otherwise. DEN and the Contractor shall take reasonable steps to obtain consent of the insurer(s) and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

## 6.8 DEN Right to Exclude Parties from the DEN ROCIP

DEN reserves the right to exclude any subcontractor from the DEN ROCIP, before or after enrollment by the subcontractor. If DEN elects to exclude a subcontractor from the DEN ROCIP, the Contractor will be responsible for ensuring the insurance coverages outlined in the Contractor's Subcontract Agreement are provided to DEN or the DEN ROCIP Administrator before the subcontractor can begin or resume Work on the Project.

## 6.9 DEN's Right to Modify or Discontinue DEN ROCIP Coverages

If DEN determines that modification or discontinuation of the DEN ROCIP is in the best interest of DEN, the Contractor and subcontractor will receive sixty (60) days advance written notice to secure and maintain such insurance as is required to provide replacement coverage comparable to that provided under the DEN ROCIP. Provided that the foregoing is not the result of any failure by the Contractor or any subcontractor to comply with the requirements of the Contract Documents, the DEN ROCP Insurance Manual or DEN ROCIP Safety Manual, the costs of such replacement insurance shall be deemed a cost of Work for which the Contractor shall be entitled to a Contract Adjustment, without any sum added thereto for Allowable Markup. The form, content, limits of liability, cost and the rating of the insurer(s) issuing such replacement coverage shall be subject to DEN's prior written approval.

## 7. Definitions

| Certificate of<br>Insurance:  | A document providing evidence of coverage for a particular insurance<br>policy or policies. This will include certificates issued to Enrolled<br>Parties evidencing the coverage afforded under the DEN ROCIP and<br>certificates issued to DEN evidencing additional coverage "Provided by<br>Enrolled Parties" |
|-------------------------------|--|
| DEN:                          | City and County of Denver and Denver International Airport   |
| Contract:                     | The written agreement between DEN and Contractor describing the<br>Work, contract terms and conditions, or a portion thereof; also includes<br>a written agreement between a Contractor and any subcontractor as well<br>as between subcontractors and their subcontractors of any tier.                         |
| Contractor Insurance<br>Cost: | The costs of ROCIP coverage are defined as the amount of Contractor's and eligible Subcontractors' of every tier reduction in insurance costs due to participation in the DEN ROCIP.   |

| Rolling Owner<br>Controlled<br>Insurance Program<br>(ROCIP): | A coordinated insurance program providing certain coverage, as<br>defined herein, for DEN, Contractor and Enrolled Subcontractors, along<br>with their Eligible Employees, performing Work at the Project Site.  |
|--|--|
| Eligible Employees:  | Employees of the Contractor and Enrolled Subcontractors who are not excluded from the ROCIP under the "Excluded Parties" definition.   |
| Enrolled Parties:  | The Contractor and those subcontractors that have submitted all<br>necessary enrollment information and been accepted into the ROCIP as<br>evidenced by the issuance of a Certificate of Insurance.  |
| Ineligible/Excluded<br>Parties:                              | Parties not covered by the ROCIP because of ineligibility or DEN<br>explicit exclusion. No insurance coverage provided by DEN under the<br>ROCIP shall extend to the activities or products of the following:  |
|  | • Any person or organization that fabricates or manufactures products, materials or supplies away from a Project Site with no direct onsite installation responsibility  |
|  | Exception: The ROCIP Insurer may agree to extend General Liability coverage only if the General Contractor has a written contract with the off-site fabricator or manufacturer to provide the pre-fabricated product. To consider extending coverage, the Insurer requires 30 days advance written notice to the ROCIP Administrator with details of the work/product and a copy of the contract between the General Contractor and the off-site fabricator or manufacturer. Approval must be obtained from the Insurer before enrolling in the ROCIP for General Liability coverage only. |
|  | • Scaffolding contractors (erecting and dismantling scopes of work only)   |
|  | • Hazardous materials remediation, removal, or transportation companies and their consultants  |
|  | • Architects, engineers, surveyors and their consultants   |
|  | • Truckers, haulers, material dealers, vendors, suppliers, and others<br>who merely transport, pick up, deliver, or carry materials, personnel,<br>parts or equipment or any other items or persons to or from a Project<br>Site including companies providing supplemental services   |
|  | • Contractors, subcontractors and subconsultants who do not work at a Project Site   |
|  | • Employees of an Enrolled Party who either (i) do not work on-site or<br>(ii) occasionally visit a Project Site to make deliveries, pick-up<br>supplies or personnel, to perform supervisory or progress<br>inspections, or for any other reason  |
|  |  |

|                                  | • Temporary labor employees (individuals working directly for the Contractor and not procured through a third party such as a Professional Employer Organization)   |
|----------------------------------|---|
|                                  | Exception: The ROCIP Insurer typically will accept including<br>employees working for a contractor, or employed by temporary<br>staffing agencies or professional employer organizations, as long as<br>those employer-entities are enrolled as subcontractors to supply<br>supplemental workforce.   |
| Insured:<br>(liability policies) | DEN, Contractor and Enrolled Parties and their Eligible Employees and<br>any other party named in the insurance policies.   |
| Insurers:                        | Those insurance companies providing the DEN ROCIP coverage. The insurers will be identified on the issued Certificate of Insurance and in the DEN ROCIP Insurance Manual.   |
| Net Bid:                         | Contractor bids with insurance costs removed because of the obligation<br>of any Enrolled Party to delete insurance costs for coverage provided<br>by the ROCIP from its bid and all change orders. Net bids are subject to<br>verification by the Administrator through the providing of contractors'<br>rate and declaration pages from their Insurance policies. |
| ROCIP<br>Administrator:          | The DEN ROCIP Administrator will be identified in the DEN ROCIP Insurance Manual.   |
| ROCIP Insurance<br>Manual:       | A reference document provided to Contractor and subcontractors of all<br>tiers, which summarizes the terms and provisions of the DEN ROCIP<br>and provides information about requirements and compliance.   |
| ROCIP Safety<br>Manual:          | A reference document provided to Contractor and subcontractors of all<br>tiers which contains workplace safety requirements of all Enrolled<br>Parties.   |
| Off Site Work:                   | Work performed away from the Project Site.  |
| Payroll:                         | For purposes of the ROCIP only, refers to Unburdened Straight Time Payroll per Workers Compensation Class Code.   |
| Policy Owner:                    | City and County of Denver and Denver International Airport  |
| Project:                         | The Project as defined in the contract documents and as described in the Declarations of the DEN ROCIP insurance policies.  |

| Project Site: | Means those areas designated in writing by DEN in a Contract<br>document for performance of the Work and such additional areas as |
|---------------|---|
|               | may be designated in writing by DEN for Contractors' use in   |
|               | performance of the Work. Subject to the ROCIP Insurer(s) written  |
|               | approval, the term "Project Site" shall also include: (1) field office sites,   |
|               | (2) property used for bonded storage of material for the Project  |
|               | approved by DEN, (3) staging areas dedicated to the Project, and (4)  |
|               | areas where activities incidental to the Project are being performed by   |
|               | Contractor or subcontractors covered by the DEN ROCIP Worker's  |
|               | Compensation policy (if included), but excluding any permanent  |
|               | locations of any Enrolled Party.  |
|               |   |

*Items 1 through 4 above must be approved by the ROCIP Insurer and listed on the DEN ROCIP insurance policies.* 

- Subcontract: The written agreement between Contractor and subcontractor, or between subcontractor and a lower tier subcontractor, describing the Work, subcontract terms and conditions, or a portion thereof.
- Subcontractor: Includes those persons, firms, joint venture entities, corporations, or other parties that enter into a Subcontract with Contractor to perform Work at the Project Site and any of these subcontractor's lower-tier subcontractors.
- Work: Construction build operations, as fully described in the Contract and Subcontract, performed at the Project Site.

### Exhibit D

# **City and County of Denver**



**TIMOTHY M. O'BRIEN, CPA** AUDITOR

201 West Colfax Avenue, #705 • Denver, Colorado 80202 (720) 913-5000 • Fax (720) 913-5253 • denvergov.org/auditor

| TO:      | All Users of the City and County of Denver Prevailing Wage Schedules |
|----------|--|
| FROM:    | Luis Osorio Jimenez, Prevailing Wage Administrator                   |
| DATE:    | August 6, 2024   |
| SUBJECT: | Latest Change to Prevailing Wage Schedules                           |

The effective date for this publication will be, **Tuesday, August 6, 2024,** and applies to the City and County of Denver for **HIGHWAY CONSTRUCTION PROJECTS** (does not include residential construction consisting of single family homes and apartments up to and including 4 stories) in accordance with the Denver Revised Municipal Code, Section 20-76(c).

> General Wage Decision No. CO 20240009 Superseded General Decision No. CO 20230009 Modification No. 3 Publication Date: 8/2/2024 (9 pages)

Unless otherwise specified in this document, apprentices shall be permitted only if they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor (DOL). The employer and the individual apprentice must be registered in a program which has received prior approval by the DOL. Any employer who employs an apprentice and is found to be in violation of this provision shall be required to pay said apprentice the full journeyman scale.

Attachments as listed above.

In accordance to the amendment of Section 20-76, Division 3, Article IV, Chapter 20 of the Denver Revised Municipal Code enacted on Aug 21<sup>st</sup>, 2023, the Prevailing Wage Administrator is authorized to approve and adjust all Davis Bacon classifications under \$18.29 to comply with the city's minimum wage. Contractors will also have to comply with the established Minimum Wage of \$18.29 for all apprentice classifications as base rate. Fringes will be added in to the base rate amount.

"General Decision Number: CO20240009 08/02/2024

Superseded General Decision Number: CO20230009

State: Colorado

Construction Type: Highway

Counties: Denver and Douglas Counties in Colorado.

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)(1).

| If the contract is entered    | . | Executive Order 14026      |
|-------------------------------|---|----------------------------|
| into on or after January 30,  |   | generally applies to the   |
| 2022, or the contract is      |   | contract.                  |
| renewed or extended (e.g., an | . | The contractor must pay    |
| option is exercised) on or    |   | all covered workers at     |
| after January 30, 2022:       |   | least \$18.29 per hour (or |
|                               |   | the applicable wage rate   |
|                               |   | listed on this wage        |
|                               |   | determination, if it is    |
|                               |   | higher) for all hours      |
|                               |   |                            |

1 spent performing on the | contract in 2024. |If the contract was awarded on|. Executive Order 13658 |or between January 1, 2015 and| generally applies to the |January 29, 2022, and the | contract. |contract is not renewed or |. The contractor must pay allI |extended on or after January | covered workers at least 30, 2022: | \$18.29 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 2024. 

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 <u>http://www.dol.gov/whd/govcontracts</u>.

| Modification Number<br>0<br>1<br>2<br>3   | Publication<br>01/05/2024<br>05/31/2024<br>07/05/2024<br>08/02/2024 | Date   |                          |
|---|---|--------|--------------------------|
| CARP9901-008 05/01/2024   | 4   |        |                          |
|   | R   | ates   | Fringes                  |
| CARPENTER (Form Work On   | ly)\$   | 33.11  | 12.17                    |
| ELEC0068-016 03/01/2013   | 1   |        |                          |
|   | R   | ates   | Fringes                  |
| TRAFFIC SIGNALIZATION:<br>Traffic Signal Installat<br>Zone 1<br>Zone 2  | \$  |        | 4.75%+8.68<br>4.75%+8.68 |
| TRAFFIC SIGNAL INSTALLED  | R ZONE DEFIN  | ITIONS |                          |
| Zone 1 shall be a 35 mile radius, measured from the<br>following addresses in each of the following cities:<br>Colorado Springs - Nevada & Bijou<br>Denver - Ellsworth Avenue & Broadway<br>Ft. Collins - Prospect & College<br>Grand Junction - 12th & North Avenue<br>Pueblo - I-25 & Highway 50<br>All work outside of these areas shall be paid Zone 2 rates. |   |        |                          |
| * ENGI0009-008 05/01/202  | 24  |        |                          |
| ENG10009-000-007017202  |   | ates   | Fringes                  |
| POWER EQUIPMENT OPERATOR<br>(3)-Hydraulic Back<br>(Wheel Mounted, und<br>yds), Hydraulic Bac<br>(Backhoe/Loader   | noe<br>der 3/4  |        |                          |

| combination), Drill Rig<br>Caisson (smaller than<br>Watson 2500 and similar),  |       |                |
|--|-------|----------------|
| Loader (up to and<br>including 6 cu. yd.)\$<br>(3)-Loader (under 6 cu.   | 35.03 | 15.20          |
| yd.)<br>Denver County\$<br>(3)-Motor Grader (blade-  | 35.03 | 15.20          |
| rough)<br>Douglas County\$<br>(4)-Crane (50 tons and   | 33.19 | 15.20          |
| under), Scraper (single<br>bowl, under 40 cu. yd)\$<br>(4)-Loader (over 6 cu. yd)  | 35.78 | 15.20          |
| Denver County\$<br>(5)-Drill Rig Caisson<br>(Watson 2500 similar or<br>larger), Crane (51-90<br>tons), Scraper (40 cu.yd | 35.20 | 15.20          |
| and over),\$<br>(5)-Motor Grader (blade-   | 35.41 | 15.20          |
| <br>finish)<br>Douglas County\$<br>(6)-Crane (91-140 tons)\$   |       | 15.20<br>15.20 |

\_\_\_\_

\* SUCO2011-004 09/15/2011

|   | Rates       | Fringes      |
|---|-------------|--------------|
| CARPENTER (Excludes Form Work)                          | \$ 19.27    | 5.08         |
| CEMENT MASON/CONCRETE FINISHER<br>Denver<br>Douglas     |             | 5.75<br>3.00 |
| ELECTRICIAN (Excludes Traffic<br>Signal Installation)   | \$ 35.13    | 6.83         |
| FENCE ERECTOR (Excludes<br>Link/Cyclone Fence Erection) | \$ 18.42 ** | 3.20         |
| GUARDRAIL INSTALLER                                     | \$ 18.29 ** | 3.20         |

| HIGHWAY/PARKING LOT<br>STRIPING:Painter<br>Denver\$<br>Douglas\$  |                      | 3.21<br>3.21                 |
|---|----------------------|------------------------------|
| IRONWORKER, REINFORCING<br>(Excludes Guardrail<br>Installation)\$   | 55.25 **             | 3.65                         |
| IRONWORKER, STRUCTURAL/ORNAMENTAL<br>(Includes Link/Cyclone Fence<br>Erection, Excludes Guardrail<br>Installation)\$    | 37.23 **             | 12.79                        |
| LABORER<br>Asphalt Raker\$<br>Asphalt Shoveler\$<br>Asphalt Spreader\$  | 21.21                | 4.25<br>4.25<br>4.65         |
| Common or General<br>Denver\$<br>Douglas\$<br>Concrete Saw (Hand Held)\$<br>Landscape and Irrigation\$<br>Mason Tender- | 18.28 **<br>18.29 ** | 6.77<br>4.25<br>6.14<br>3.16 |
| Cement/Concrete<br>Denver\$<br>Douglas\$<br>Pipelayer<br>Denver\$   | 18.96 **             | 4.04<br>4.25<br>2.41         |
| Denver<br>Douglas\$<br>Traffic Control (Flagger)\$<br>Traffic Control (Sets<br>Up/Moves Barrels, Cones,                 | 18.96**              | 2.41<br>2.18<br>3.05         |
| Install Signs, Arrow<br>Boards and Place<br>Stationary Flags)(Excludes<br>Flaggers)\$                                   | 21.17 **             | 3.22                         |
| PAINTER (Spray Only)\$<br>POWER EQUIPMENT OPERATOR:   | 18.29**              | 2.87                         |
| Asphalt Laydown<br>Denver\$   | 22.67                | 8.72                         |

| Douglas\$                  | 23.67    | 8.47 |
|----------------------------|----------|------|
| Asphalt Paver              |          |      |
| Denver\$                   | 24.97    | 6.13 |
| Douglas\$                  | 25.44    | 3.50 |
| Asphalt Roller             |          |      |
| Denver\$                   | 23.13    | 7.55 |
| Douglas\$                  | 23.63    | 6.43 |
| Asphalt Spreader\$         |          | 8.72 |
| Backhoe/Trackhoe           |          |      |
| Douglas\$                  | 23.82    | 6.00 |
| Bobcat/Skid Loader\$       |          | 4.28 |
| Boom\$                     | 22.67    | 8.72 |
| Broom/Sweeper              |          |      |
| Denver\$                   | 22.47    | 8.72 |
| Douglas\$                  | 22.96    | 8.22 |
| Bulldozer\$                |          | 5.59 |
| Concrete Pump\$            | 21.60    | 5.21 |
| Drill                      |          |      |
| Denver\$                   | 20.48    | 4.71 |
| Douglas\$                  |          | 2.66 |
| Forklift\$                 | 18.29 ** | 4.68 |
| Grader/Blade               |          |      |
| Denver\$                   | 22.67    | 8.72 |
| Guardrail/Post Driver\$    |          | 4.41 |
| Loader (Front End)         |          |      |
| Douglas\$                  | 21.67    | 8.22 |
| Mechanic                   |          |      |
| Denver\$                   | 22.89    | 8.72 |
| Douglas\$                  |          | 8.22 |
| Oiler                      |          |      |
| Denver\$                   | 23.73    | 8.41 |
| Douglas\$                  |          | 7.67 |
| Roller/Compactor (Dirt and |          |      |
| Grade Compaction)          |          |      |
| Denver\$                   | 20.30    | 5.51 |
| Douglas\$                  |          | 4.86 |
| Rotomill\$                 | 18.29 ** | 4.41 |
| Screed                     |          |      |
| Denver\$                   | 22.67    | 8.38 |
| Douglas\$                  |          | 1.40 |
| Tractor\$                  | 18.29 ** | 2.95 |
|                            |          |      |

TRAFFIC SIGNALIZATION: Groundsman

| Denver\$ 18.29                   | )    | 3.41 |
|----------------------------------|------|------|
| Douglas\$ 18.6                   | 7    | 7.17 |
|                                  |      |      |
| TRUCK DRIVER                     |      |      |
| Distributor                      |      |      |
| Denver\$ 19.12                   | 2    | 5.82 |
| Douglas\$ 18.29                  | ) ** | 5.27 |
| Dump Truck                       |      |      |
| Denver\$ 18.29                   | ) ** | 5.27 |
| Douglas\$ 19.41                  | **   | 5.27 |
| Lowboy Truck\$ 18.29             | )    | 5.27 |
| Mechanic\$ 26.48                 |      | 3.50 |
| Multi-Purpose Specialty &        |      |      |
| Hoisting Truck                   |      |      |
| Denver\$ 18.29                   | )    | 3.17 |
| Douglas\$ 20.85                  |      | 2.88 |
| Pickup and Pilot Car             |      |      |
| Denver\$ 18.29                   | ) ** | 3.77 |
| Douglas\$ 20.48                  |      | 3.68 |
| Semi/Trailer Truck\$ 18.39       | )    | 4.13 |
| Truck Mounted Attenuator\$ 18.29 | ) ** | 3.22 |
| Water Truck                      |      |      |
| Denver\$ 26.2                    | 7    | 5.27 |
| Douglas\$ 19.40                  |      | 2.58 |
|                                  |      |      |

\_\_\_\_

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

#### Administrator Supplemental Rates (Specific to the Denver projects) Revision Date: 01-01-2024

| Classification                   |                                  | Base    | Fringe             |
|----------------------------------|----------------------------------|---------|--------------------|
| Guard Rail Installer             |                                  | \$18.29 | \$3.20             |
| Highway Parking Lot Striping:    |                                  |         |                    |
| Painter                          |                                  | \$18.29 | \$3.21             |
| Laborer                          | Removal of Asbestos              | \$21.03 | \$8.55             |
| Laborer (Landscape & Irrigation) |                                  | \$18.29 | \$3.16             |
| Line Construction                | Lineman, Gas Fitter/Welder       | \$36.88 | \$9.55             |
|                                  | Line Eq Operator/Line Truck Crew | \$25.74 | \$8.09             |
| Millwright                       |                                  | \$28.00 | \$10.00            |
| Pipefitter                       |                                  | \$30.45 | \$12.85            |
| Plumber                          |                                  | \$30.19 | \$13.55            |
| Power Equipment Operator         |                                  |         |                    |
| (Tunnels Above and Below         | Group 1                          | \$25.12 | \$10.81            |
| Ground, shafts and raises):      |                                  |         |                    |
|                                  |                                  | 445 45  | <b>*</b> • • • • • |
|                                  | Group 2                          | \$25.47 | \$10.85            |
|                                  | Group 3                          | \$25.57 | \$10.86            |
|                                  | Group 4                          | \$25.82 | \$10.88            |
|                                  | Group 5                          | \$25.97 | \$10.90            |
|                                  | Group 6                          | \$26.12 | \$10.91            |
|                                  | Group 7                          | \$26.37 | \$10.94            |
| Power Equipment Operator         | Group 1                          | \$22.97 | \$10.60            |
|                                  | Group 2                          | \$23.32 | \$10.63            |
|                                  | Group 3                          | \$23.67 | \$10.67            |
|                                  | Group 4                          | \$23.82 | \$10.68            |
|                                  | Group 5                          | \$23.97 | \$10.70            |
|                                  | Group 6                          | \$24.12 | \$10.71            |
|                                  | Group 7                          | \$24.88 | \$10.79            |
| Truck Driver                     | Group 1                          | \$18.42 | \$10.00            |
|                                  | Group 2                          | \$19.14 | \$10.07            |
|                                  | Group 3                          | \$19.48 | \$10.11            |
|                                  | Group 4                          | \$20.01 | \$10.16            |
|                                  | Group 5                          | \$20.66 | \$10.23            |
|                                  | Group 6                          | \$21.46 | \$10.31            |
| Truck Driver: Truck Mounted      |                                  |         |                    |
| Attenuator                       |                                  | \$18.29 | \$3.22             |

Go to <u>http://www.denvergov.org/Auditor</u> to view the Prevailing Wage Clarification Document for a list of complete classifications used

#### SC-1 CONSTRUCTION CONTRACT GENERAL CONDITIONS

The City and County of Denver ("City") Construction Contract General Conditions, which constitute a part of the Contract Documents, are outlined in a separately published document entitled "City and County of Denver, Department of Aviation and Department of Public Works, Standard Specifications for Construction, General Contract Conditions," 2011 Edition (informally referred to as the Yellow Book).

The General Conditions are also available on the City's website at: https://www.denvergov.org/content/dam/denvergov/Portals/

#### SC-2 CONTRACT DOCUMENTS PROVIDED BY DENVER INTERNATIONAL AIRPORT ("DEN")

The City will provide the following Contract Documents to the Contractor in electronic format at no expense to the Contractor:

- **1.** Issued For Construction Documents:
- A. Division 1 Specifications dated December 20,2024
- B. Division 2 Specifications dated December 20,2024
- C. Construction Drawings dated December 20, 2024
- **D.** Construction Safety and Phasing Plan December 20, 2024

Additional copies of the Contract Documents may be furnished to the Contractor at the Contractor's expense. The Contractor shall be responsible for supplying all subcontractors with copies of the Contract Documents at Contractor's expense.

#### SC-3 REVISIONS TO G.C. 201

The second sentence of General Condition 201 is amended to read: "The unit responsible for this management and control is the Design, Engineering, and Construction Division ("DEC") under the supervision of the Senior Vice President for DEC."

#### SC-4 CLARIFICATION TO GC 217 CITY LINE OF AUTHORITY AND CONTACTS

In accordance with General Condition 212, the City's line of authority for administration of this Contract is:

<u>Chief Executive Officer</u>, Department of Aviation (CEO). Executive Office, 9th Floor, Airport Office Building, 8500 Peña Boulevard, Denver, CO 80249. Any reference to the Manager of Aviation shall also mean CEO.

<u>Executive Vice President</u> – Chief Construction and Infrastructure Officer (EVP-CCIO) who reports to the CEO. Executive Office, 9th Floor, Airport Office Building, 8500 Peña Boulevard, Denver, CO 80249. <u>Senior Vice President</u> – Design, Engineering and Construction (SVP-DEC) who reports to the EVP-CCIO. DEC, Airport Office Building, 8500 Peña Boulevard, Denver, CO 80249.

<u>Supervisor, DEN-DEC Airside</u>, who reports to the SVP-DEC. DEC, Airport Office Building, 8500 Peña Boulevard, Denver, CO 80249.

The <u>Project Manager</u> is the City representative with day-to-day administrative responsibility of this Contract, and reports to the Director of Infrastructure. All notices, requests, pay applications (pursuant to G.C. 902) and other correspondence from the Contractor shall be sent to the assigned Project Manager unless otherwise provided in this Contract. The Project Manager for this Contract is: Cole Miller, DEC, Airport Office Building, 8500 Peña Boulevard, Denver, CO 80249, phone (801) 664-8785. The CEO may occasionally substitute a different City official as the designated "SVP-DEC" hereunder, and any such change will be effective upon the issuance of written notice to the Contractor, which identifies the successor SVP-DEC. The SVP-DEC may, from time to time, change the assigned Project Manager, and any such change will be effective upon the issuance of written notice to the Contractor, which identifies the successor Project Manager.

#### SC-5 REVISIONS TO GC 401; FEDERAL REQUIREMENTS IN CONTRACT DOCUMENTS

The Division 2 Specifications included in the Contract Documents contain certain provisions required by Federal law, regulation, and/or policy. Accordingly, in the event of any discrepancy between these required Federal terms and any terms of the Contract, the General Conditions, the Special Conditions, or other Contract Documents, the Federal terms will apply. GC 401.3, paragraph B, is amended to read: "General Conditions shall be given precedence over Technical Specifications except that if, and to the extent that, the Technical Specifications provide for a higher standard or more stringent requirements than the General Conditions or the Special Conditions, the Technical Specifications shall be given precedence in such respects."

#### SC-6 CLARIFICATION TO GC 501 CONTRACTOR PERFORMANCE; SUBCONTRACTING

With respect to General Condition 501 and Federal General Provision 80-01, no more than sixty-five percent (65%) of the Work may be subcontracted. If it is determined to be in the City's best interest, this percentage may be modified throughout the course of the Project by the SVP-DEC.

#### SC-7 COOPERATION WITH OTHERS/ONGOING WORK WHICH MAY BE OVERLAPPING

The Technical Specifications describe the constraints on the physical work site areas. These descriptions are not exhaustive, and the Contractor is required to coordinate its activities and work as may be required to meet Federal Aviation Administration ("FAA") or City requirements while performing the Work at Denver International Airport ("DEN" or "Airport").

Without limiting the foregoing, other contracts administered by the City may involve work overlapping or adjoining the Work under this Contract and may be performed concurrently with the Work performed under this Contract. The Contractor is required to coordinate its performance of the Work with all other contractors, parties and stakeholders, regardless of whether such other projects are listed herein.

| Contract Number | Description                                  |
|-----------------|--|
| 202475020       | Runway 17R-35L Pavement Rehabilitation       |
| TBD             | Taxiway CN and Taxilane West Extension       |
| TBD             | Taxiways F, G, and H Pavement Rehabilitation |

#### SC-8 PERFORMANCE AND COMPLETION OF THE WORK:

The Work to be performed under the Contract is described in the Technical Specifications and Contract Drawings. The Contractor shall complete the Work within 200 consecutive calendar days from Notice to Proceed (NTP).

The Work to be performed under the Contract is divided into the Milestone Areas which are described in the Technical Specifications or Contract Drawings (each a "Milestone" and collectively the "Milestones"). The Contractor shall complete the work included within each Milestone within the number of days set forth in Federal Provision Section 80 of the Division 2 Specifications and the Construction Safety and Phasing Plan (CSPP), both included in the Contract Documents.

#### SC-9 LIQUIDATED DAMAGES

Liquidated damages associated with this project are defined in Section 9 of the Contract and Federal General Provision Section 80-08 of the Division 2 Specifications, included in the Contract Documents. Said Section 80-08 of the Division 2 Specifications, Section 9 of the Contract, and General Condition 602 cover payment and withholding of liquidated damages.

#### SC-10 FACILITY SECURITY AND PERSONNEL ACCESS

The Contractor shall conduct all its activities at DEN in compliance with DEN's Airport Security rules and regulations, which are administered by DENs Airport Operations Division. The Contractor shall obtain the proper access authorizations for its employees, subcontractors and suppliers (i.e., Badges and Permits), and shall be responsible for such persons' compliance with all the Airport Rules and Regulations. A copy of the Contractors' section of the Airport Security rules and regulations are available for Contractor review at the Airport Access Services Office, Concourse A East Subcore, 4th Level. Persons regularly entering the construction areas must obtain personnel access badges from the Airport Access Services Office and must display badges, at all times, upon entering the construction, restricted and sterile areas of the airport. Any employee, subcontractor or supplier who violates such rules may be subject to revocation of his access authorization, including authorization for access to the construction site and all other restricted and sterile areas.

The security status of the Airport is subject to change without notice. These Special Conditions are applicable to the current security status of the Airport. Should the security status of the Airport change at any time during the term of this Contract, a written notice shall be issued to the Contractor detailing all applicable security modifications from the airport's current security status. The Contractor shall take **immediate steps** to comply with those security modifications as directed in the written notice.

If these security modifications involve any additional project cost, the Contractor shall submit a Contractor Change Request in accordance with the General Conditions for the additional cost. The Contractor Change Request shall outline in specific detail the effects of the security modifications on the Contractor's performance of the Contract and shall provide a detailed cost breakdown for each item for which the Contractor is requesting reimbursement.

The Contractor shall return all access keys issued by the City to all areas of the Airport. If the Contractor fails to return any such key or keys at contract completion or termination, or upon demand by the City, the Contractor shall be liable to the City for related costs, including labor costs for employees, costs incurred in re-coring doors and any other work which is required to prevent compromise of Airport security. To collect such costs, the City may withhold funds in such amount from any amounts due and payable to the Contractor under this Contract.

If construction breaches any Airport perimeter security boundary or requires continued access to restricted access rooms or areas, the Contractor shall post authorized contract security personnel to maintain required security controls. The Contractor's **Maximum Contract Amount** shall include the cost of providing security services to maintain control and supervision of any and all airport perimeter security boundary breaches and for the duration of work activities until the airport perimeter security boundaries are reestablished.

# THE IMPORTANCE OF THIS SPECIAL CONDITION CANNOT BE OVER-EMPHASIZED. SEVERE FINANCIAL PENALTIES INCLUDING CONTRACT TERMINATION COULD RESULT IF AIRPORT PERIMETER SECURITY

#### REQUIREMENTS ARE NOT STRICTLY FOLLOWED. THE CONTRACTOR SHALL PROVIDE ONE HUNDRED PERCENT (100%) CONTROL AND SUPERVISION TO PREVENT UNSUPERVISED/UNSECURED BREACHES IN THE AIRPORT'S PERIMETER SECURITY. AT NO TIME, DURING WORK AND NON-WORK HOURS, SHALL BREACHES IN THE AIRPORT'S SECURITY PERIMETER BE UNSUPERVISED/UNSECURED.

For off-hours of construction, the Contractor may choose to erect a temporary wall to close all perimeter openings. The wall construction shall be of sufficient materials and strength to prevent access to the Airport's Sterile/Restricted Areas. The Contractor shall submit for review and approval, the details and materials for the temporary closure of security perimeter breaches.

The Contractor shall provide contract security guard services to maintain supervision of these openings. The security services **must** provide coverage to allow for lunch breaks, comfort breaks and etc. The security services **must** be obtained from the following contract security guard company:

Covenant Aviation Security, LLC 1112 W. Boughton Road Suite 355 Bolingbrook, IL 60440

The DEN contact number for Covenant Aviation Security is: (720) 222-4774.

All security guards provided for this project must have a DEN SIDA Badge.

The company providing contract security guard services at DEN may change at any time. The Contractor shall maintain a contractual relationship with whichever company is providing contract security guard services for the City at DEN.

The Contractor shall continue to provide security of these areas until such time that the breaches in the Airport's security perimeter have been permanently secured.

The Contractor shall submit a written security plan for approval to DEN's Director of Airport Security prior to the start of construction on any work where a breach of the perimeter security boundaries is required.

#### SC-11 CONSTRUCTION ACCESS

The work site is located at various drainages in the vicinity of Runway 17L-35R and Taxiway P (refer to Sheet C007). The Contractor shall have access to the work site via Gate P44T or P45T depending on the Contractor Staging Area assigned after contract award. The Contractor is responsible for ensuring that all of the Contractor's and subcontractors' personnel have the ability to access and locate the areas of work where the scope is to be performed without additional escorting or supervision from the City.

The City will not provide parking spaces for the Contractor's employees or subcontractor employees at the Airport. Arrangements for transportation and parking for all employees, including subcontractors, shall be the responsibility of the Contractor. The Maximum Contract Amount shall include any and all costs associated with the Contractor's and subcontractors' employee parking. Information about parking facilities and charges is available from the Airport Parking Office. Refundable deposits are required for all parking passes.

Unless specifically required by the Contract Documents, the Contractor shall install no fences or other physical obstructions on or around any project work area without the approval of the City.

#### SC-12 VEHICLE PERMITTING

Vehicle access on the Airport Operation Area ("AOA") is controlled by and operated by DEN Airport Operations and DEN Airport Security. Contractor is required to obtain a vehicle access permit for any vehicle entering inside this area. It is not anticipated that the Contractor will need to operate vehicles on the AOA to perform the Work. Only direct construction support vehicles and/or equipment will be allowed in the contractor's work areas or sites.

#### SC-13 REVISIONS TO GC 1102

GC 1102.2 is amended by replacing the phrase "Change Request" in all its occurrences in such GC with the phrase "Change Notice."

GC 1102.3 is amended by replacing the phrase "Field Order/Change Order Directive" in all its occurrences in such GC with the phrase "Change Directive."

#### SC-14 VENDORS AND SUPPLIERS

The Contractor shall provide the Project Manager's office with a list of its equipment/material vendors and suppliers. Vendors or suppliers shall access the construction work areas via the Contractor's access route specified in SC-10. All delivery vehicles are subject to search.

#### SC-15 COMMUNICATION DEVICES

Any site communications devices, mobile communication devices or internet data devices used at DEN must be approved by DEN Technologies prior to NTP.

#### SC-16 BONDS, SALES TAX AND INSURANCE

All costs associated with Contractor's bonds requirements, sales and use tax, and insurance requirements shall be reimbursed to the Contractor by the City at direct cost and without mark up. Under no circumstances shall the City reimburse or pay in any way any amount incurred by the Contractor for any such costs incurred by any subcontractors.

#### SC-17 PROJECT CONTROLS REQUIREMENT

The Contractor shall be required to use the designated Project Management Information System ("PMIS"), including but not limited to, Unifier, BIM 360 Field and Primavera P6 compatible to comply with the requirements of DEN's Project Controls System. The PMIS is DEC's tool for Project and information management, data analysis and document control. The City shall provide the licensing and training for PMIS to the Contractor. The Contractor shall be responsible for providing a compatible PC system that can support Primavera P6. The Contractor shall also be responsible for providing and maintaining the computer hardware, software and system environment capable of supporting Project Controls System requirements including at least: internet connection; Microsoft Windows 10 or better; Microsoft Office 2010; Oracle Java JRE 1.7.0 Update 5 and Adobe Acrobat X Pro. PMIS is the only project management system that will be accepted. All aforementioned systems are subject to change, at the City's sole discretion. The Contractor is required to follow all project controls technical specifications and process guidelines.

#### SC-18 PAYMENTS TO CONTRACTORS

To the fullest extent possible within the financial payment system, the City shall be entitled to all non-Confidential records, reports, data, and other information related to the Project that are available to Contractor through the financial payment system, including but not limited to, information related to Contractor and subcontractor billings. To that end, the Contractor shall activate any available settings within the financial payment system that are necessary to grant the City access to such non-Confidential information related to the Contract and the Project. Applications for payment shall be based on the Contract Unit Prices or the approved Schedule of Values described in GC 903.1.

In accordance with General Condition 902, PAYMENT PROCEDURE, the party(ies) responsible for the review of all Pay Applications shall be:

#### Agency/Firm

DEN Division CA DEN Division PM DEN Division Supervisor DEN Division Director DEN Contract Services CA CCD Denver Prevailing Wage DEN DSBO

#### SC-19 ADDITION TO GC 906

In accordance with General Contract Condition 906, APPLICATIONS FOR PAYMENT, each Application submitted shall include the following:

- 1. Each Application for Payment shall include contractor's payroll information, including payment dates and payment amounts.
- 2. Each Application for Payment shall include each and every independent subcontractor's payroll information including pay dates and pay amounts.
- 3. The Contractor shall also submit to the Auditor and other appropriate officials of the City in a timely fashion, information required by General Contract Condition 1004, REPORTING WAGES PAID.

#### SC-20 PAYMENTS TO SUBCONTRACTOR AND SUBCONTRACTOR RELEASES – REQUIRED USE OF THE B2G MANAGEMENT SYSTEM

The Contractor is required to use the City B2G Contract Management System to report all subcontractor payments and shall adhere to the City's Procedure for Reporting Subcontractor Payments. It is the Contractor's obligation to ensure that complete subcontractor information is entered into the B2G System prior to submission of the first Application for Payment in order to avoid any delays in payment. The Contractor shall, prior to the submission of each subsequent invoice, ensure payments to subcontractors have been entered into the B2G System, including subcontractor confirmation of the amount of payment received, for services performed during the prior billing period.

#### SC-21 ESTIMATED QUANTITIES OF UNIT PRICED ITEMS

The "total estimated quantity" of each unit price item as stated on the Bid schedules shall be the estimated quantity which is used to determine the percentage of change in such item for purposes of G.C. 1104.7.

#### SC-22 LISTING OF ACCEPTABLE MANUFACTURERS

The Technical Specifications list "Acceptable Manufacturers" for certain products. Such listing identifies manufacturers of certain products which have been determined by a preliminary review to be able to meet the basic product and/or system technical requirements. The listing is not intended to provide a blanket endorsement or acceptance of the manufacturer's specified products or product line. All products from listed manufacturers must meet the detailed requirements of the Technical Specifications. Products that do not meet all detailed Technical Specifications are not acceptable and will be rejected, regardless of whether the manufacturer was listed as "acceptable." The Contractor is responsible for determining the acceptability of all products under the Technical Specifications prior to submission of products for approval.

#### SC-23 CONTRACTOR SUPERINTENDENT

General Contract Condition 307 is hereby deleted in its entirety and replaced with the following: The Contractor shall employ and designate to the Project Manager in writing a competent Construction Project Manager, Construction Manager (Project Superintendent), Quality Manager, Traffic Control Manager, and Environmental Manager. The qualifications of these staff must be acceptable to the City. The Project Superintendent shall serve on a full-time basis at the Work site and shall be authorized to act on behalf of the Contractor in all matters related to the Work. The same individuals shall continue in their defined roles until the Work has been completed, unless the City requests or approves replacement, or they cease to be employed by the Contractor, in which case Contractor shall notify the City within one (1) calendar day of the replacement and request the City's approval of the replacement. The Project Superintendent, or their approved designated representative must be onsite at all times when on-site Work is performed.

#### SC-24 SUBSTANTIAL COMPLETION

General Contract Condition 119 is hereby deleted in its entirety and replace with the following:

"Substantial Completion" of the Work means the Work has progressed to the point that the City can beneficially occupy and utilize the Work for the purposes for which it is intended, and the Work complies with all applicable codes and regulations, including, if required, issuance of a certificate of occupancy, or certification of suitability for use from the appropriate governmental agencies, as determined by the Project Manager in their sole discretion. Substantial Completion includes, without limitation, the achievement of the following specific conditions: (1) the full and operational status of all drainage elements, (2) all roadways and accesses are complete and open to traffic, (3) all permanent striping, signals and lighting are complete and operational and traffic is in its final configuration, (4) all landscaping is installed with native natural area landscaping seeded with the appropriate Best Management Practices (BMPs) installed, and (5) all Work is in compliance with all applicable laws and the Contract Documents. The achievement of Substantial Completion shall be determined by the Project Manager in their sole discretion. The Project Manager will advise the Contractor in writing when Substantial Completion of the Work has been achieved.

#### SC-25 ATTORNEYS' FEES

Colorado Revised Statutes § 38-26-107 requires that, in the event any person or company files a verified statement of amounts due and unpaid in connection with a claim for labor and materials supplied on this project, the City shall withhold from payments to the Contractor sufficient funds to insure the payment of any such claims. Should the City be made a party to any lawsuit to enforce such unpaid claims or any lawsuit arising out of or relating to such withheld funds, Contractor agrees to pay to the City its costs and a reasonable attorney's fee incurred in any such lawsuit. Because the City Attorney Staff

does not bill the City for legal services on an hourly basis, Contractor agrees a reasonable fee shall be computed at the rate of two hundred dollars (\$200) per hour of City Attorney time.

#### SC-26 INSURANCE REQUIREMENTS

In accordance with the provisions of Title 16 of the General Conditions, the minimum insurance requirements for this Contract are set forth in Section 10 of the Contract. The Contractor specifically agrees to comply with each condition, requirement or specification set forth in the attachment for each required coverage during all periods when the required coverages are in effect.

Contractor and subcontractors shall procure and maintain until all of their obligations have been discharged, including any warranty periods under this Contract are satisfied, required insurance against claims for injury to persons or damage to property which may arise from or in connection with the performance of the work hereunder by the Contractor, its agents, representatives, employees, or sub-contractors.

The insurance requirements herein are minimum requirements for this Contract and in no way limit the indemnity covenants contained in this Contract.

The City in no way warrants that the minimum limits contained herein are sufficient to protect the Contractor from liabilities that might arise out of the performance of the work under this Contract by the Contractor, its agents, representatives, employees, or sub-contractors. The Contractor shall assess its own risks as it deems appropriate and/or prudent, maintain higher limits and/or broader coverages. The Contractor is not relieved of any liability or other obligations assumed or pursuant to the Contract by reason of its failure to obtain or maintain insurance in sufficient amounts, duration, or types.

Contractor shall furnish the City with certificates of insurance (ACORD form or equivalent approved by the City) as required by this Contract. The certificates for each insurance policy are to be signed by a person authorized by the insurer to bind coverage on its behalf.

All certificates and any required endorsements are to be received and approved by the City before work commences. Each insurance policy required by this Contract must be in effect at or prior to commencement of work under this Contract and remain in effect for the duration of the project. Failure to maintain the insurance policies as required by this Contract or to provide evidence of renewal is a material breach of the Contract. All insurance coverages for subcontractors shall be subject to the minimum requirements identified in Section 10 of the Contract. All subcontractors' certificates and endorsements shall be received and approved by the Contractor before work commences. The City reserves the right to request copies of these certificates at any time.

All certificates required by this Contract shall be sent directly to ContractAdminInvoices@flydenver.com. The City project/contract number and project description shall be noted on the certificate of insurance. The City reserves the right to require complete, certified copies of all insurance policies required by this Contract at any time.

The parties hereto understand and agree that the City, its elected and appointed officials, employees, agents, and volunteers are relying on, and do not waive or intend to waive by any provisions of this Contract, the monetary limitations or any other rights, immunities and protections provided by the Colorado Governmental Immunity Act, C.R.S. §§ 24-10-101 *et seq.*, or otherwise available to the City, its elected and appointed officials, employees, agents, and volunteers.

#### SC-27 ADDITIONAL AFFIRMATIVE ACTION REQUIREMENTS, FEDERAL PROVISIONS

The Contract is subject and subordinate to the terms, reservations, restrictions, and conditions of any existing or future agreements between the City and the United States, the execution of which has been or may be required as a condition precedent to the transfer of federal rights or property to the City for airport purposes, and the expenditure of federal funds for the extension, expansion or development of the Airport System. The Contractor shall comply with Section 29 and Exhibit A of the Contract.

#### SC-28 WORKER WITHOUT AUTHORIZATION GC DELETED

General Condition 31, the Worker without Authorization provision, is hereby removed from this Contract.

EXHIBIT F

### **City and County of Denver**





### DEPARTMENT OF AVIATION DEPARTMENT OF PUBLIC WORKS

### STANDARD SPECIFICATIONS FOR CONSTRUCTION GENERAL CONTRACT CONDITIONS

## 2011 Edition

#### Statement

The City and County of Denver does not warrant or represent the accuracy or timeliness of the information contained in this page or any of its constituent pages and the information presented is for instructional purposes and illustration only and is not intended to be specific advice, legal or otherwise. The City has made every effort to provide accurate up-to-date information, however this database is dynamic and errors can occur. The City and County of Denver shall not be held responsible for errors or omissions nor be liable for any special consequential or exemplary damages resulting, in whole or in part, from any viewer(s)' uses of, or in reliance upon, this material.

Page Number

| TITLE 1 - DI  | EFINITIONS   | 1   |
|---|--|---|
| 101   | CITY   | 1   |
| 102   | CONTRACT   |   |
| 103   | CONTRACT AMOUNT  |   |
| 104   | CONTRACT DOCUMENTS   |   |
| 105   | CONTRACT TIME  |   |
| 106   | CONTRACTOR   |   |
| 107   | CONTRACTOR PERSONNEL   |   |
| 108   | DAYS   |   |
| 109   | DEPUTY MANAGER   |   |
| 110   | DESIGNER   |   |
| 111   | FINAL COMPLETION   |   |
| 112   | MANAGER  | 3   |
| 113   | PRODUCT DATA   | 3   |
| 114   | PROJECT  | 3   |
| 115   | PROJECT MANAGER  | 3   |
| 116   | SAMPLES  | 3   |
| 117   | SHOP DRAWINGS  | 3   |
| 118   | SUBCONTRACTOR  | 3   |
| 119   | SUBSTANTIAL COMPLETION   | 3   |
| 120   | SUPPLIER   | 4   |
| 121   | WORK   | 4   |
|   |  | -   |
|   | ITY ADMINISTRATIVE ORGANIZATIONS; LINE OF AUTHORITY  |   |
| 201   | DEPARTMENT OF AVIATION   | 5   |
| 201<br>202  | DEPARTMENT OF AVIATION<br>MANAGER OF AVIATION  | 5<br>5  |
| 201<br>202<br>203   | DEPARTMENT OF AVIATION<br>MANAGER OF AVIATION<br>DEPARTMENT OF PUBLIC WORKS  | 5<br>5<br>5   |
| 201<br>202<br>203<br>204  | DEPARTMENT OF AVIATION<br>MANAGER OF AVIATION<br>DEPARTMENT OF PUBLIC WORKS<br>MANAGER OF PUBLIC WORKS   | 5<br>5<br>5<br>5  |
| 201<br>202<br>203<br>204<br>205   | DEPARTMENT OF AVIATION<br>MANAGER OF AVIATION<br>DEPARTMENT OF PUBLIC WORKS<br>MANAGER OF PUBLIC WORKS<br>BUILDING INSPECTION  | 5<br>5<br>5<br>5<br>5   |
| 201<br>202<br>203<br>204<br>205<br>206  | DEPARTMENT OF AVIATION<br>MANAGER OF AVIATION<br>DEPARTMENT OF PUBLIC WORKS<br>MANAGER OF PUBLIC WORKS<br>BUILDING INSPECTION<br>ZONING  | 5<br>5<br>5<br>5<br>5   |
| 201<br>202<br>203<br>204<br>205<br>206<br>207   | DEPARTMENT OF AVIATION<br>MANAGER OF AVIATION<br>DEPARTMENT OF PUBLIC WORKS<br>MANAGER OF PUBLIC WORKS<br>BUILDING INSPECTION<br>ZONING<br>DIVISION OF SMALL BUSINESS OPPORTUNITY  | 5<br>5<br>5<br>5<br>5<br>5<br>  |
| 201<br>202<br>203<br>204<br>205<br>206<br>207<br>208  | DEPARTMENT OF AVIATION<br>MANAGER OF AVIATION<br>DEPARTMENT OF PUBLIC WORKS<br>MANAGER OF PUBLIC WORKS<br>BUILDING INSPECTION<br>ZONING<br>DIVISION OF SMALL BUSINESS OPPORTUNITY<br>CITY AUDITOR  |   |
| 201<br>202<br>203<br>204<br>205<br>206<br>207<br>208<br>209   | DEPARTMENT OF AVIATION<br>MANAGER OF AVIATION<br>DEPARTMENT OF PUBLIC WORKS<br>MANAGER OF PUBLIC WORKS<br>BUILDING INSPECTION<br>ZONING<br>DIVISION OF SMALL BUSINESS OPPORTUNITY<br>CITY AUDITOR<br>MANAGER OF FINANCE  |   |
| 201<br>202<br>203<br>204<br>205<br>206<br>207<br>208<br>209<br>210  | DEPARTMENT OF AVIATION<br>MANAGER OF AVIATION<br>DEPARTMENT OF PUBLIC WORKS<br>MANAGER OF PUBLIC WORKS<br>BUILDING INSPECTION<br>ZONING<br>DIVISION OF SMALL BUSINESS OPPORTUNITY<br>CITY AUDITOR<br>MANAGER OF FINANCE<br>CITY ATTORNEY   |   |
| 201<br>202<br>203<br>204<br>205<br>206<br>207<br>208<br>209<br>210<br>211   | DEPARTMENT OF AVIATION<br>MANAGER OF AVIATION<br>DEPARTMENT OF PUBLIC WORKS<br>MANAGER OF PUBLIC WORKS<br>BUILDING INSPECTION<br>ZONING<br>DIVISION OF SMALL BUSINESS OPPORTUNITY<br>CITY AUDITOR<br>MANAGER OF FINANCE<br>CITY ATTORNEY<br>OFFICE OF RISK MANAGEMENT  |   |
| 201<br>202<br>203<br>204<br>205<br>206<br>207<br>208<br>209<br>210  | DEPARTMENT OF AVIATION<br>MANAGER OF AVIATION<br>DEPARTMENT OF PUBLIC WORKS<br>MANAGER OF PUBLIC WORKS<br>BUILDING INSPECTION<br>ZONING<br>DIVISION OF SMALL BUSINESS OPPORTUNITY<br>CITY AUDITOR<br>MANAGER OF FINANCE<br>CITY ATTORNEY   | 5<br>5<br>5<br>5<br>5<br>5<br>5<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>6   |
| 201<br>202<br>203<br>204<br>205<br>206<br>207<br>208<br>209<br>210<br>211<br>212<br>213   | DEPARTMENT OF AVIATION<br>MANAGER OF AVIATION<br>DEPARTMENT OF PUBLIC WORKS<br>MANAGER OF PUBLIC WORKS<br>BUILDING INSPECTION<br>ZONING<br>DIVISION OF SMALL BUSINESS OPPORTUNITY<br>CITY AUDITOR<br>MANAGER OF FINANCE<br>CITY ATTORNEY<br>OFFICE OF RISK MANAGEMENT<br>CITY'S CONTRACT ADMINISTRATION LINE OF AUTHORITY  | 5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>6<br>6<br>6<br>6<br>6<br>7  |
| 201<br>202<br>203<br>204<br>205<br>206<br>207<br>208<br>209<br>210<br>211<br>212<br>213   | DEPARTMENT OF AVIATION<br>MANAGER OF AVIATION<br>DEPARTMENT OF PUBLIC WORKS<br>MANAGER OF PUBLIC WORKS<br>BUILDING INSPECTION<br>ZONING<br>DIVISION OF SMALL BUSINESS OPPORTUNITY<br>CITY AUDITOR<br>MANAGER OF FINANCE<br>CITY ATTORNEY<br>OFFICE OF RISK MANAGEMENT<br>CITY'S CONTRACT ADMINISTRATION LINE OF AUTHORITY<br>CITY'S COMMUNICATIONS WITH THE CONTRACTOR   | 5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>6<br>6<br>6<br>6<br>6<br>6<br>7<br>8  |
| 201<br>202<br>203<br>204<br>205<br>206<br>207<br>208<br>209<br>210<br>211<br>212<br>213<br>TITLE 3 - CO   | DEPARTMENT OF AVIATION<br>MANAGER OF AVIATION<br>DEPARTMENT OF PUBLIC WORKS<br>MANAGER OF PUBLIC WORKS<br>BUILDING INSPECTION<br>ZONING<br>DIVISION OF SMALL BUSINESS OPPORTUNITY<br>CITY AUDITOR<br>MANAGER OF FINANCE<br>CITY ATTORNEY<br>OFFICE OF RISK MANAGEMENT<br>CITY'S CONTRACT ADMINISTRATION LINE OF AUTHORITY<br>CITY'S COMMUNICATIONS WITH THE CONTRACTOR   | 5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>6<br>6<br>6<br>6<br>6<br>6<br>7<br>7<br><b>8</b><br>8   |
| 201<br>202<br>203<br>204<br>205<br>206<br>207<br>208<br>209<br>210<br>211<br>212<br>213<br><b>TITLE 3 - CO</b><br>301                             | DEPARTMENT OF AVIATION<br>MANAGER OF AVIATION<br>DEPARTMENT OF PUBLIC WORKS<br>MANAGER OF PUBLIC WORKS<br>BUILDING INSPECTION<br>ZONING<br>DIVISION OF SMALL BUSINESS OPPORTUNITY<br>CITY AUDITOR<br>MANAGER OF FINANCE<br>CITY ATTORNEY<br>OFFICE OF RISK MANAGEMENT<br>CITY'S CONTRACT ADMINISTRATION LINE OF AUTHORITY<br>CITY'S COMMUNICATIONS WITH THE CONTRACTOR<br>DNTRACTOR PERFORMANCE AND SERVICES<br>CONSIDERATION (CONTRACTOR'S PROMISE OF PERFORMANCE)  | 5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5   |
| 201<br>202<br>203<br>204<br>205<br>206<br>207<br>208<br>209<br>210<br>211<br>212<br>213<br><b>TITLE 3 - CO</b><br>301<br>302                      | DEPARTMENT OF AVIATION<br>MANAGER OF AVIATION<br>DEPARTMENT OF PUBLIC WORKS<br>MANAGER OF PUBLIC WORKS<br>BUILDING INSPECTION<br>ZONING<br>DIVISION OF SMALL BUSINESS OPPORTUNITY<br>CITY AUDITOR<br>MANAGER OF FINANCE<br>CITY ATTORNEY<br>OFFICE OF RISK MANAGEMENT<br>CITY'S CONTRACT ADMINISTRATION LINE OF AUTHORITY<br>CITY'S COMMUNICATIONS WITH THE CONTRACTOR<br><b>DNTRACTOR PERFORMANCE AND SERVICES</b><br>CONSIDERATION (CONTRACTOR'S PROMISE OF PERFORMANCE)<br>NOTICE TO PROCEED AND COMPLETION OF THE WORK   | 5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>7<br>7<br><b>8</b><br>8<br>8<br>8<br>8<br>8                          |
| 201<br>202<br>203<br>204<br>205<br>206<br>207<br>208<br>209<br>210<br>211<br>212<br>213<br><b>TITLE 3 - CO</b><br>301<br>302<br>303               | DEPARTMENT OF AVIATION<br>MANAGER OF AVIATION<br>DEPARTMENT OF PUBLIC WORKS<br>MANAGER OF PUBLIC WORKS<br>BUILDING INSPECTION<br>ZONING<br>DIVISION OF SMALL BUSINESS OPPORTUNITY<br>CITY AUDITOR<br>MANAGER OF FINANCE<br>CITY ATTORNEY<br>OFFICE OF RISK MANAGEMENT.<br>CITY'S CONTRACT ADMINISTRATION LINE OF AUTHORITY<br>CITY'S CONTRACT ADMINISTRATION LINE OF AUTHORITY<br>CONSIDERATION (CONTRACTOR'S PROMISE OF PERFORMANCE)<br>NOTICE TO PROCEED AND COMPLETION OF THE WORK<br>EXACT CONTRACTOR PERFORMANCE. | 5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>6<br>6<br>6<br>6<br>6<br>6<br>6<br>7<br>7<br><b>8</b><br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8<br>8 |
| 201<br>202<br>203<br>204<br>205<br>206<br>207<br>208<br>209<br>210<br>211<br>212<br>213<br><b>TITLE 3 - CO</b><br>301<br>302<br>303<br>304        | DEPARTMENT OF AVIATION<br>MANAGER OF AVIATION<br>DEPARTMENT OF PUBLIC WORKS<br>MANAGER OF PUBLIC WORKS<br>BUILDING INSPECTION<br>ZONING<br>DIVISION OF SMALL BUSINESS OPPORTUNITY<br>CITY AUDITOR<br>MANAGER OF FINANCE<br>CITY ATTORNEY<br>OFFICE OF RISK MANAGEMENT.<br>CITY'S CONTRACT ADMINISTRATION LINE OF AUTHORITY<br>CITY'S CONTRACT ADMINISTRATION LINE OF AUTHORITY<br>CITY'S CONTRACT ADMINISTRATION LINE OF AUTHORITY<br>CITY'S COMMUNICATIONS WITH THE CONTRACTOR<br><b>DNTRACTOR PERFORMANCE AND SERVICES</b><br>CONSIDERATION (CONTRACTOR'S PROMISE OF PERFORMANCE)<br>NOTICE TO PROCEED AND COMPLETION OF THE WORK<br>EXACT CONTRACTOR PERFORMANCE<br>SUBSTITUTED PERFORMANCE   |   |
| 201<br>202<br>203<br>204<br>205<br>206<br>207<br>208<br>209<br>210<br>211<br>212<br>213<br><b>TITLE 3 - CO</b><br>301<br>302<br>303<br>304<br>305 | DEPARTMENT OF AVIATION<br>MANAGER OF AVIATION<br>DEPARTMENT OF PUBLIC WORKS<br>MANAGER OF PUBLIC WORKS<br>MANAGER OF PUBLIC WORKS<br>BUILDING INSPECTION<br>ZONING<br>DIVISION OF SMALL BUSINESS OPPORTUNITY<br>CITY AUDITOR<br>MANAGER OF FINANCE<br>CITY ATTORNEY<br>OFFICE OF RISK MANAGEMENT<br>CITY'S CONTRACT ADMINISTRATION LINE OF AUTHORITY<br>CITY'S CONTRACT ADMINISTRATION LINE OF AUTHORITY<br>CITY'S COMMUNICATIONS WITH THE CONTRACTOR<br><b>DNTRACTOR PERFORMANCE AND SERVICES</b><br>CONSIDERATION (CONTRACTOR'S PROMISE OF PERFORMANCE)<br>NOTICE TO PROCEED AND COMPLETION OF THE WORK<br>EXACT CONTRACTOR PERFORMANCE<br>SUBSTITUTED PERFORMANCE<br>WORK PERFORMED UNDER ADVERSE WEATHER CONDITIONS  |   |

| 309          | CONTRACTOR SUBMITTALS AND OTHER WRITTEN COMMUNICATIONS                             |    |
|--------------|--|----|
| 210          | TO THE CITY  |    |
| 310          | COMPENTENCE OF CONTRACTOR'S WORK FORCE   |    |
| 311          | NO EMPLOYMENT OF ILLEGAL ALIENS TO PERFORM WORK UNDER THE CONTRACT                 |    |
| 312          | CONDUCT OF CONTRACTOR'S PERSONNEL  |    |
| 312          | SUGGESTIONS TO CONTRACTOR  |    |
| 314          | WORK FORCE   |    |
| 315          | CONSTRUCTION MACHINES AND STANBY EQUIPMENT   |    |
| 316          | CUTTING AND PATCHING THE WORK  |    |
| 317          | PERMITS AND LICENSES   |    |
| 318          | CONSTRUCTION SURVEYS   |    |
| 319          | PRESERVATION OF PERMANENT LAND SURVEY CONTROL MARKERS                              |    |
| 320          | TRADEMARKS, COPYRIGHTS AND PATENTED DEVICES, MATERIALS<br>AND PROCESSES            | ,  |
| 321          | PROJECT SIGNS  |    |
| 321          | PUBLICITY AND ADVERTISING  |    |
| 322          | TAXES  |    |
| 323          | DOCUMENTS AND SAMPLES AT THE SITE  |    |
| 324          | CLEANUP DURING CONSTRUCTION  |    |
| 323<br>326   |  |    |
| 320<br>327   | SANITARY FACILITIES<br>POWER, LIGHTING, HEATING, VENTILATING, AIR CONDITIONING AND |    |
| 527          | WATER SERVICES   |    |
| TITLE 4 - CO | ONTRACT DOCUMENTS (DRAWINGS AND SPECIFICATIONS)                                    | 19 |
| 401          | CONTRACT DOCUMENTS - REVIEW AND INTERPRETATION                                     | 19 |
| 401          | OWNERSHIP OF CONTRACT DRAWINGS AND TECHNICAL                                       | 1) |
| 402          | SPECIFICATIONS   | 20 |
| 403          | CONTRACT DRAWINGS AND TECHNICAL SPECIFICATIONS ISSUED TO                           | 20 |
| 405          | THE CONTRACTOR   | 20 |
| 404          | REQUESTS FOR INFORMATION OR CLARIFICATION  |    |
| 405          | SHOP DRAWINGS, PRODUCT DATA AND SAMPLES  |    |
| 406          | SUBSTITUTION OF MATERIALS AND EQUIPMENT  |    |
| TITLE 5 - SU | JBCONTRACTS  | 24 |
| 501          | SUBCONTRACTS   | 24 |
| 502          | SUBCONTRACTOR ACCEPTANCE   |    |
| 302          | SUBCONTRACTOR ACCEPTANCE   | 24 |
| TITLE 6 - TI | ME OF COMMENCEMENT AND COMPLETION  | 27 |
| 601          | BEGINNING, PROGRESS AND TIME OF COMPLETION   | 27 |
| 602          | LIQUIDATED DAMAGES, ADMINISTRATIVE COSTS; ACTUAL DAMAGES                           |    |
| 603          | DELAY DAMAGES  |    |
| TITLE 7 - C  | OOPERATION, COORDINATION AND RATE OF PROGRESS                                      | 29 |
| 701          | COOPERATION WITH OTHER WORK FORCES   |    |
| 702          | COORDINATION OF THE WORK   |    |
| 703          | COORDINATION OF PUBLIC CONTACT   |    |
| 703          | RATE OF PROGRESS.  |    |
| TITLE 8 - PI | ROTECTION OF PERSONS AND PROPERTY  | 32 |
|              |  |    |
| 801          | SAFETY OF PERSONS  |    |
| 802          | PROTECTIVE DEVICES AND SAFETY PRECAUTIONS  | 33 |

| 803           | PROTECTION OF PROPERTY AND WORK IN PROGRESS                | 33 |
|---------------|--|----|
| 804           | PROTECTION OF MUNICIPAL, PUBLIC SERVICE OR UTILITY SYSTEMS | 34 |
| 805           | PROTECTION OF STREET AND ROAD SYSTEM                       |    |
| 806           | PROTECTION OF DRAINAGE WAYS                                |    |
| 807           | PROTECTION OF THE ENVIRONMENT                              |    |
| 808           | HAZARDOUS AND EXPLOSIVE MATERIALS OR SUBSTANCES            | 37 |
| 809           | ARCHEOLOGICAL AND HISTORICAL DISCOVERIES                   | 37 |
| TITLE 9 - CO  | OMPENSATION  |    |
|               | CONSIDERATION (CITY'S PROMISE TO PAY)                      |    |
| 901<br>902    | PAYMENT PROCEDURE  |    |
| 902<br>903    | SCHEDULE OF VALUES IN LUMP SUM CONTRACTS                   |    |
| 903<br>904    | UNIT PRICE CONTRACTS                                       |    |
| 904<br>905    | PROGRESS PERIOD  |    |
| 903<br>906    | APPLICATIONS FOR PAYMENT                                   |    |
| 900<br>907    | RELEASES AND CONTRACTORS CERTIFICATION OF PAYMENT          |    |
| 907<br>908    | RETAINAGE  |    |
| 908           | ADDITIONAL WITHHOLDING OF PROGRESS PAYMENTS                |    |
| 909<br>910    | FINAL ESTIMATE AND PAYMENT                                 |    |
| 910           | ACCOUNTING OF COSTS AND AUDIT                              |    |
| 711           | ACCOUNTING OF COSTS AND AUDIT                              | 43 |
| TITLE 10 - W  | /AGES  | 45 |
| 1001          | PREVAILING WAGE ORDINANCE                                  | 45 |
| 1002          | POSTING OF THE APPLICABLE WAGE RATES                       | 45 |
| 1003          | RATE AND FREQUENCY OF WAGES PAID                           | 45 |
|               | REPORTING WAGES PAID                                       |    |
| 1005          | FAILURE TO PAY PREVAILING WAGES                            | 46 |
| TITLE 11 - C  | HANGES IN THE WORK, CONTRACT PRICE OR CONTRACT TIME        | 47 |
| 1101          | CHANGE ORDER   | 47 |
|               | CITY INITIATED CHANGES                                     |    |
|               | CONTRACTOR CHANGE REQUEST                                  |    |
| 1104          |  |    |
| 1105          | TIME EXTENSIONS  | 54 |
| TITLE 12 - C  | ONTRACTOR CLAIMS FOR ADJUSTMENT AND DISPUTES               | 56 |
|               | NOTICE OF INTENT TO CLAIM                                  |    |
|               | SUBMITTAL OF CLAIMS  |    |
|               | WAIVER OF CLAIMS   |    |
|               | ISPUTES  |    |
|               |  |    |
| 1301          | DISPUTES   | 59 |
| TITLE 14 - SI | ITE CONDITIONS   | 60 |
|               | DIFFERING SITE CONDITIONS                                  |    |
| 1402          | SITE INSPECTIONS AND INVESTIGATIONS                        | 60 |

| <b>TITLE 15 - P</b> | ERFORMANCE AND PAYMENT BONDS   | 62 |
|---------------------|--|----|
| 1501                | SURETY BONDS   | 62 |
| 1502                | PERFORMANCE BOND   | 62 |
| 1503                | PAYMENT BOND   | 62 |
| TITLE 16 - II       | SURANCE AND INDEMNIFICATION  | 63 |
|                     | INSURANCE  |    |
| 1602                | DEFENSE AND INDEMNIFICATION  | 63 |
| TITLE 17 - I        | NSPECTION AND DEFECTS  | 64 |
|                     | CONSTRUCTION INSPECTION BY THE CITY                                      |    |
|                     | AUTHORITY OF INSPECTORS  |    |
|                     | OBSERVABLE DEFECTS   |    |
|                     | DEFECTS - UNCOVERING WORK  |    |
|                     | LATENT DEFECTS   |    |
| 1706                | REMOVAL OF DEFECTIVE MATERIALS AND WORK                                  | 65 |
| TITLE 18 - W        | ARRANTIES, GUARANTEES AND CORRECTIVE WORK                                | 66 |
| 1801                | CONTRACTOR'S WARRANTIES, GUARANTEES AND CORRECTION OF WORK               |    |
| 1802                | PERFORMANCE DURING WARRANTY PERIOD                                       |    |
| TITLE 19 - S        | UBSTANTIAL COMPLETION OF THE WORK  | 69 |
| 1901                | CONTRACTOR'S NOTICE OF SUBSTANTIAL COMPLETION                            | 69 |
| 1902                | INSPECTION AND PUNCH LIST  | 69 |
| 1903                | CERTIFICATE OF SUBSTANTIAL COMPLETION                                    | 69 |
| 1904                | RIGHT OF EARLY OCCUPANCY OR USE  | 69 |
| TITLE 20 - F        | INAL COMPLETION AND ACCEPTANCE OF WORK                                   | 71 |
| 2001                | CLEAN-UP UPON COMPLETION   | 71 |
|                     | FINAL COMPLETION AND ACCEPTANCE OF THE WORK                              |    |
| 2003                | FINAL SETTLEMENT   | 71 |
| TITLE 21 - S        | USPENSION OF WORK  | 74 |
| 2101                | SUSPENSION OF WORK   | 74 |
|                     | SUSPENSION OF THE WORK FOR THE CITY'S CONVENIENCE                        |    |
|                     | SUSPENSION BECAUSE OF ORDER OF CITY, STATE OR FEDERAL COURT<br>OR AGENCY |    |
| 2104                | SUSPENSION RESULTING FROM CONTRACTOR'S FAILURE TO PERFORM                |    |
| TITLE 22 - C        | ITY'S RIGHT TO TERMINATE THE CONTRACT                                    | 76 |
| 2201                | TERMINATION OF CONTRACT FOR CAUSE  | 76 |
|                     | TERMINATION OF CONTRACT FOR CONVENIENCE OF THE CITY                      |    |
| TITLE 23 - M        | IISCELLANEOUS PROVISIONS   | 80 |
| 2301                | PARTIES TO THE CONTRACT  | 80 |
|                     | FEDERAL AID PROVISIONS   |    |
|                     |  |    |

| INDEX |      |  | i-ix |
|-------|------|--|------|
|       | 2307 | STATUTE OF LIMITATIONS IN C.R.S. § 13-80-102(1)(h) | 81   |
|       |      | ABBREVIATIONS                                      |      |
|       | 2305 | GOVERNING LAW; VENUE                               | 80   |
|       | 2304 | NO THIRD PARTY BENEFICIARY                         | 80   |
|       | 2303 | NO WAIVER OF RIGHTS                                | 80   |

Liberty Bond No.: 015227201

#### EXHIBIT G

#### **PERFORMANCE BOND**

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned <u>Flatiron Dragados Constructors, Inc.</u>, a corporation organized under the laws of the State of <u>Delaware</u>, hereinafter referred to as the "Contractor" and <u>Liberty Mutual Insurance Company</u>, a corporation organized under the laws of the State of <u>Massachusetts</u>, and authorized to transact business in the State of Colorado, hereinafter referred to as Surety, are held and firmly bound unto the CITY AND COUNTY OF DENVER, a municipal corporation of the State of Colorado, hereinafter referred to as the "CITY", in the penal sum of <u>Eight Million Four Hundred Thirty-Four Thousand Eight Hundred Seventy-Two and 69/100</u> Dollars (\$ <u>8,434,872.69</u>), lawful money of the United States of America, for the payment of which sum the Contractor and Surety bind themselves and their heirs, executors, administrators, successors and assigns, jointly and severally by these presents.

WHEREAS, the above Contractor has, as of the date of execution listed on the contract signature page, entered into a written contract with the City for furnishing all labor, materials, equipment, tools, superintendence, and other facilities and accessories for the construction of 202476290, RWY 17L-35R Wildlife Mitigation Ph 2 All Drainages, Denver International Airport, in accordance with the Technical Specifications, Contract Drawings and all other Contract Documents therefor which are incorporated herein by reference and made a part hereof, and are herein referred to as the Contract.

NOW, THEREFORE, the condition of this performance bond is such that if the Contractor:

- 1. Promptly and faithfully observes, abides by, and performs each and every covenant, condition, and part of said Contract, including, but not limited to, its warranty provisions, in the time and manner prescribed in the Contract, and
- 2. Pays the City all losses, damages (liquidated or actual, including, but not limited to, damages caused by delays in the performance of the Contract), expenses, costs and attorneys' fees, that the City sustains resulting from any breach or default by the Contractor under the Contract, then this bond is void; otherwise, it shall remain in full force and effect.

**IN ADDITION**, if said Contractor fails to duly pay for any labor, materials, team hire, sustenance, provisions, provender, or any other supplies used or consumed by said Contractor or its subcontractors in its performance of the work contracted to be done or fails to pay any person who supplies rental machinery, tools, or equipment, all amounts due as the result of the use of such machinery, tools, or equipment in the prosecution of the work, the Surety shall pay the same in an amount not exceeding the amount of this obligation, together with interest as provided by law.

**PROVIDED FURTHER**, that the said Surety, for value received, hereby stipulates, and agrees that any and all changes in the Contract or compliance or noncompliance with the formalities in the Contract for making such changes shall not affect the Surety's obligations under this bond and the Surety hereby waives notice of any such changes.

(End of Page)

IN WITNESS WHEREOF, said Contractor and said Surety have executed these presents as of this 24th day of \_\_\_\_\_\_, 2025\_\_\_\_.

Kevin Lynch - Divisional Finance Manager

Flatiron Dragados Constructors, Inc.

CONTRACTOR

By:

Grant Johns - Vice President

Liberty Mutual Insurance Company

SURETY

By: Lisa M. Scavetta, Attorney-in-Fact

(Accompany this bond with Attorney-in-Fact's authority from the Surety to execute bond, certified to include the date of the bond.)

#### **CORPORATE ACKNOWLEDGMENT**

Form 152

STATE OF NEW JERSEY COUNTY OF BERGEN

On this Uth day of Container, 2025 before me personally came Lisa M. Scavetta to me known, who, being by me duly sworn, did depose and say that she/he resides in Bronxville, New York that she/he is the ATTORNEY IN FACT of the LIBERTY MUTUAL INSURANCE COMPANY, the corporation described in and which executed the above instrument that she/he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that she/he signed her/his name thereto by like order.

(SEAL)

1 d. D. Davis

STEPHANY D. DAVIS () NOTARY PUBLIC, STATE OF NEW JERSEY MY COMMISSION EXPIRES JULY 28, 2025 Docusign Envelope ID: 4A01BF67-BEFF-4F67-9727-F038AFDBFD71



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.

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

Certificate No: 8210087-974450

#### 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, James Baldassare Jr, Sherryanne M. DePirro, Krista A. DiMezza, Michael Dugan, Charo J. Rosemond, Lisa M. Scavetta, Maria L. Spadaccini, John F. Surano, Nicholas F Walsh

all of the city of Saddle Brook state of NJ each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

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 11th day of May 2023





West American Insurance Company Bv:

David M. Carey, Assistant Secretary

Liberty Mutual Insurance Company

The Ohio Casualty Insurance Company

guarantees State of PENNSYLVANIA SS County of MONTGOMERY

letter of credit

nd/or Power of Attorney (POA) verification inquiries, 610-832-8240 or email HOSUR@libertymutual.com Not valid for mortgage, note, loan, letter of c currency rate, interest rate or residual value On this 11th day of 2023 before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Mav 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 Plymouth Meeting, Pennsylvania, on the day and year first above written.

PAS 05 ARY PUR

commonwealth of Pennsylvania - Notary Sea Teresa Pastella, Notary Public Montgomery County My commission expires March 28, 2025 Commission number 1126044 nnsylvania Association of Nota

By: Ilesa Pastella Teresa Pastella, Notary Public

Power This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual 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 bond and/c ase call 610 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 For bon please ( 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-infact 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, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

dav of January IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 24th 2025



LMS-12873 LMIC OCIC WAIC Multi Co 02/21

Liberty Bond No.: 015227201

#### EXHIBIT H

#### **PAYMENT BOND**

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned <u>Flatiron Dragados Constructors, Inc.</u>, a corporation organized under the laws of the State of <u>Delaware</u>, hereinafter referred to as the "Contractor" andy <u>Liberty Mutual Insurance Compan</u>, a corporation organized under the laws of the State of <u>Massachusetts</u>, and authorized to transact business in the State of Colorado, hereinafter referred to as Surety, are held and firmly bound unto the CITY AND COUNTY OF DENVER, a municipal corporation of the State of Colorado, hereinafter referred to as the "CITY", in the penal sum of \_\_\_\_\_\_\_

Eight Million Four Hundred Thirty-Four Thousand Eight Hundred Seventy-Two and 69/100 Dollars (\$8,434,872.69 ), lawful money of the United States of America, for the payment of which sum the Contractor and Surety bind themselves and their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the above Contractor has entered into a written contract with the City for furnishing all labor, materials, tools, superintendence, and other facilities and accessories for the construction of 202476290, RWY 17L-35R Wildlife Mitigation Ph 2 All Drainages, Denver International Airport, in accordance with the Technical Specifications, Contract Drawings and all other Contract Documents therefor which are incorporated herein by reference and made a part hereof, and are herein referred to as the Contract.

**NOW**, **THEREFORE**, the condition of this payment bond obligation is such that if the Contractor shall at all times promptly make payments of all amounts lawfully due to all persons supplying or furnishing it or its subcontractors with labor and materials, rental machinery, tools, or equipment, used or performed in the prosecution of work provided for in the above Contract and shall indemnify and save harmless the City to the extent of any and all payments in connection with the carrying out of such Contract which the City may be required to make under the law, then this obligation shall be null and void, otherwise, it shall remain in full force and effect;

**PROVIDED FURTHER**, that the said Surety, for value received, hereby stipulates, and agrees that any and all changes in the Contract, or compliance or noncompliance with the formalities in the Contract for making such changes shall not affect the Surety's obligations under this bond and the Surety hereby waives notice of any such changes.

[END OF PAGE]

IN WITNESS WHEREOF, said Contractor and said Surety have executed these presents as of this 24th day of \_\_\_\_\_\_, \_\_\_2025 \_\_\_.

Flatiron Dragados Constructors, Inc.

Kevin Lynch- Divisional Finance Manager

By:

Grant Johns Vice President

Liberty Mutual Insurance Company

SURETY

By: Lisa M. Scavetta, Attorney-in-Fact

(Accompany this bond with Attorney-in-Fact's authority from the Surety to execute bond, certified to include the date of the bond.)

#### **CORPORATE ACKNOWLEDGMENT**

Form 152

STATE OF NEW JERSEY COUNTY OF BERGEN

On this <u>Auth</u> day of <u>Januar</u>, <u>Jobs</u> before me personally came <u>Lisa M. Scavetta</u> to me known, who, being by me duly sworn, did depose and say that she/he resides in <u>Bronxville, New York</u> that she/he is the <u>ATTORNEY IN FACT</u> of the <u>LIBERTY</u> <u>MUTUAL INSURANCE COMPANY</u>, the corporation described in and which executed the above instrument that she/he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that she/he signed her/his name thereto by like order.

(SEAL)

Idl. daus

STEPHANY D. DAVIS NOTARY PUBLIC, STATE OF NEW JERSEY MY COMMISSION EXPIRES JULY 28, 2025 Docusign Envelope ID: 4A01BF67-BEFF-4F67-9727-F038AFDBFD71



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.

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

Certificate No: 8210087-974450

f Attorney or email H

#### 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, James Baldassare Jr, Sherryanne M. DePirro, Krista A. DiMezza, Michael Dugan, Charo J. Rosemond, Lisa M. Scavetta, Maria L. Spadaccini, John F. Surano, Nicholas F Walsh

all of the city of Saddle Brook state of NJ each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

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 11th day of May 2023 .





West American Insurance Company

The Ohio Casualty Insurance Company

Liberty Mutual Insurance Company

X Bv:

David M. Carey, Assistant Secretary

State of PENNSYLVANIA County of MONTGOMERY

credit

letter of

residual

for mortgage, note, loan, rate, interest rate or resid

Not valid f currency r

(POA) verification inquiries, HOSUR@libertymutual.com value guarantees On this 11th day of May 2023 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 Plymouth Meeting, Pennsylvania, on the day and year first above written.



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

resa Pastella, Notary Public

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ARTICLE IV - OFFICERS: Section 12. Power of Attorney.

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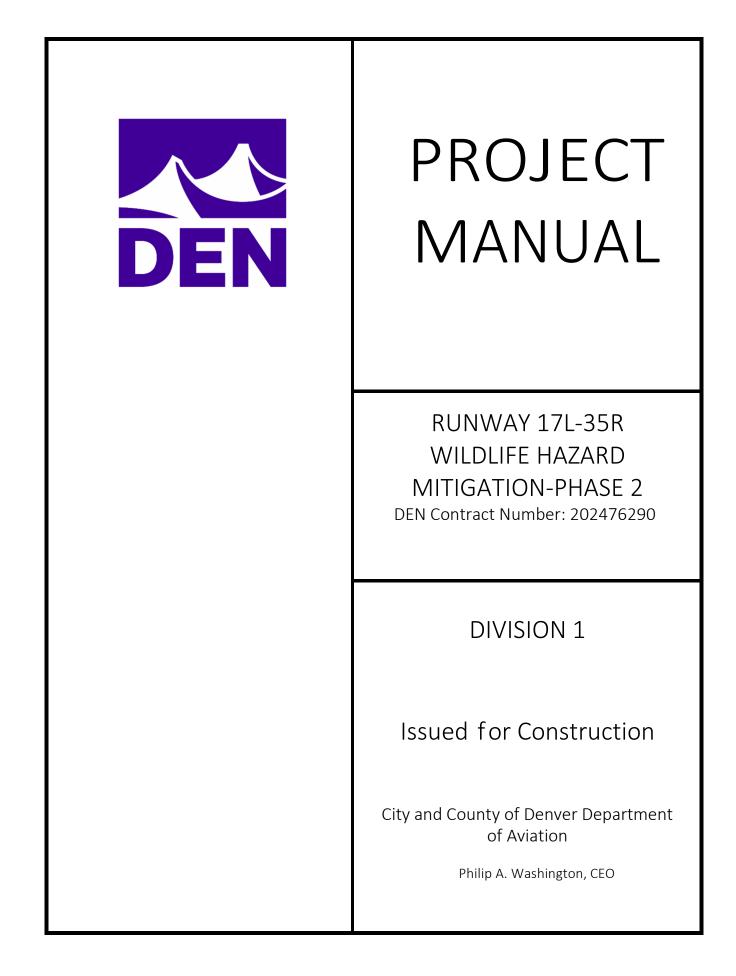
I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney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

day of January IN TESTIMONY WHEREOF, I have nereunto set my hand and affixed the seals of said Companies this 24th 2025



LMS-12873 LMIC OCIC WAIC Multi Co 02/21

#### **EXHIBIT I**



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TECHNICAL SPECIFICATIONS DIVISION 1 – GENERAL REQUIREMENTS TABLE OF CONTENTS

### **SPECIFICATIONS TABLE OF CONTENTS**

**DEN Standard Specifications** 

#### **DIVISION 01 - GENERAL REQUIREMENTS**

SECTION 011100 - SUMMARY OF WORK SECTION 011400 - WORK SEQUENCE AND CONSTRAINTS SECTION 011420 - SECURITY REQUIREMENTS & SENSITIVE SECURITY INFORMATION (SSI) SECTION 011430 - VEHICLE AND EQUIPMENT PERMITTING SECTION 011810 - UTILITIES INTERFACE SECTION 012510 - SUBSTITUTIONS SECTION 012600 – CONTRACT MODIFICATION PROCEDURES SECTION 012910 - SCHEDULE OF VALUES SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION SECTION 013119 - PROJECT MEETINGS SECTION 013210 - SCHEDULE SECTION 013223.11 - CONSTRUCTION LAYOUT AND AS-BUILT SURVEYS SECTION 013223.15 - SURVEY INFORMATION SECTION 013223.19 - QUANTITY SURVEYS SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION SECTION 013300 - SUBMITTAL PROCEDURES SECTION 013325 - SHOP AND WORKING DRAWINGS, PRODUCT DATA, AND SAMPLES SECTION 013520 - CONSTRUCTION SAFETY - AIRSIDE SECTION 014100 - REGULATORY REQUIREMENTS SECTION 014210 - REFERENCED MATERIAL SECTION 014220 - ABBREVIATIONS AND SYMBOLS SECTION 014225 - REFERENCE STANDARDS SECTION 014230 - DEFINITIONS AND CONVENTIONS SECTION 014320 - DEN QUALITY ASSURANCE FOR FAA FUNDED PROJECTS SECTION 014520 - CONTRACTOR QUALITY CONTROL PROGRAM - FAA SECTION 014525 - MATERIAL TESTING AGENCY SECTION 014545 - SPECIAL INSPECTION AGENCY AND OWNER TESTING AGENCIES SECTION 015050 - MOBILIZATION SECTION 015210 - TEMPORARY FACILITIES SECTION 015525 - TRAFFIC CONTROL SECTION 015719 - TEMPORARY ENVIRONMENTAL CONTROLS SECTION 015810 - TEMPORARY SIGNS SECTION 016000 - PRODUCT REQUIREMENTS SECTION 016610 - STORAGE AND PROTECTION SECTION 017330 - CUTTING AND PATCHING SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL SECTION 017420 - CLEANING SECTION 017515 - SYSTEM STARTUP, TESTING AND TRAINING SECTION 017720 - CONTRACT CLOSEOUT SECTION 017825 - OPERATION AND MAINTENANCE DATA SECTION 017835 - WARRANTIES AND BONDS SECTION 017840 - CONTRACT RECORD DOCUMENTS SECTION 017900 - DEMONSTRATION AND TRAINING SECTION 018113.16 - SUSTAINABILITY REQUIREMENTS SECTION 019113 - GENERAL COMMISSIONING REQUIREMENTS

TECHNICAL SPECIFICATIONS DIVISION 1 – GENERAL REQUIREMENTS TABLE OF CONTENTS

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# **SECTION 011100**

# SUMMARY OF WORK

# PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

# 1.02 SUMMARY AND DESCRIPTION

- A. The Work specified in this contract consists of furnishing all management, supervision, labor, materials, tools, equipment, services, testing and incidentals for the construction of the Work indicated in the contract documents including lump sum items and unit price items.
- B. The Work in this Contract may affect operations at DEN. The Contractor shall bid, plan and execute the Work to minimize disruption of operations and inconvenience to the public.
- C. Change Notice:
  - 1. The Contractor will be required to submit a proposal for each Change Notice
  - 2. The Contractor shall submit a proposal for the complete scope of the Work within the specified duration identified by the Notice. Where there is no time requirement identified by the notice documents, the Contractor shall submit a proposal within 20 days of receiving the notice or as allowed in Title 11 Changes in the Work, Contract Price, or Contract Time of the General Contract Conditions, 2011 Edition.
  - 3. The proposal could contain both competitive bid and estimated costs and shall adhere to the requirements of Title 11 of the General Contract Conditions.
  - 4. The Contractor shall not proceed on any change notice work until a change order is issued.
- D. Change Directives:
  - 1. The DEN Project Manager may issue Change Directive(s) for a Scope of Work. The Contractor shall keep all Time and Material record for any Change Directive(s) issued until a final settlement for the task is settled and finalized in a Change Order.
  - 2. The Contractor shall keep records and approvals for all Time and Material impacts of a Change Directive until a final settlement is reached and fully executed by the DEN Project Manager.
  - 3. The Contractor may invoice for a Change Directive in accordance with Title 11 of the General Contract Conditions, 2011 Edition.
- E. Guaranteed Maximum Price (GMP): For Contracts assigned as GMP the Contractor shall follow the Special Conditions issued for the Contract.
- F. This Project will be administered using the current Project Management Information System (PMIS). The application will be supplied by DEN at no cost to the Contractor. DEN will provide PMIS training for up to two (2) of the contractor's personnel.
- G. The Contractor shall participate in a preconstruction coordination meeting and update the existing BIM Project Execution Plan or prepare a BIM Project Execution Plan if one does

not exist based upon the DEN BIM Project Execution Plan (BPXP) template included as provided by the DEN Digital Facilities and Infrastructure (DFI) group and the coordination meeting instructions.

- H. DEN utilizes several programs as part of the Asset Management System. Keeping accurate as-built record and operation and maintenance data are essential in the integrity and the validity of the airport operation. The Contractor is required to make every effort to keep the airport data informed, updated and accurate in the format required by DEN Project Manager:
  - 1. The Contractor shall provide and implement BIM Project Execution Plan based on the DEN BIM Project Execution Plan. The Contractor shall employ or contract a consultant to provide all the requirements to produce the Project model in the latest edition of the currently approved DEN format.
  - 2. The Contractor shall comply with all the requirements of DEN BIM Project Execution Plan and provide the data to DEN to produce the complete record of the BIM model of the Project
- I. Inspection Requirements:
  - 1. Special Inspection and Testing required by the building official or the Engineer of Record in the Contract Documents or in the Statement of Special Inspections will be performed by DEN contracted Agencies.
  - Contractor shall subcontract Qualified Material Testing Agency(s) to perform all necessary Quality Control, processing control and any additional Testing required by the Contract Documents.
  - 3. DEN Quality Assurance Manager may audit all material tests performed by the Contractor Quality Control at any time. Testing and Inspections for structural elements (reinforced concrete, steel, masonry caissons, fire protection, precast and post tension concrete) not identified as special inspection will be performed by the Contractor Quality Control Program and Contractor Material Testing Agency and audited and confirmed by DEN Quality Assurance Manager. DEN will perform 100% visual inspection on all weldments. DEN will perform Quality Assurance testing at a frequency of approximately 10% of the Quality Control test and inspection frequencies. The testing frequencies by DEN may escalate to higher percentages and the Contractor will be responsible for all costs associated with failing tests of the same pay item elements. The Contractor may not hire the DEN contracted or testing agency in any capacity on this Project.
- J. DEN Quality Assurance will perform all quality assurance pull and adhesion tests on all airfield joint sealants. Contractor shall perform all quality control tests for the same items.
- K. DEN Quality Assurance is required to submit a letter indicating that all Work performed on the project complies with all applicable codes. The Contractor shall make sure that all required test frequencies and all deficiencies has been corrected to comply with all applicable codes and standards and the requirements of the Contract Documents.

# 1.03 WORK BY OTHERS AND FUTURE WORK

A. Refer to Title 7 – Cooperation, Coordination and Rate of Progress of the General Contract Conditions, 2011 Edition

#### 1.04 SITE CONDITIONS

A. Refer to Title 14 – Site Conditions of the General Contract Conditions, 2011 Edition

PART 2 - PRODUCTS (NOT USED)

# PART 3 - EXECUTION

# 3.01 CONTRACTOR'S DUTIES

- A. Refer to Title 3 Contractor Performance and Services of the General Contract Conditions, 2011 Edition
- B. Execute the Work as specified and in a timely manner. Submit a schedule of Work that will be performed at times other than during the eight-hour working day of Monday through Friday, daylight hours. Submit this schedule five (5) working days prior to the beginning of Work to the DEN Project Manager for review and acceptance. Approval to work at night may be obtained after Contractor presents a written program outlining special precautions to be taken to control the extraordinary hazards presented by night work. That program shall include, but not be limited to, supplementary lighting of work areas, availability of medical facilities, security precautions, and noise limitations.

# 3.02 COORDINATION

- A. Coordinate execution of the Work with those public utilities, governmental bodies, private utilities and other contractors performing work on and adjacent to the worksites. Eliminate or minimize delays in the Work and conflicts with those utilities, bodies, and contractors. Schedule governmental, private utility and public utility work that relies upon survey points, lines and grades established by the Contractor to occur immediately after those points, lines and grades have been established. Confirm coordination measures for each individual case with the DEN Project Manager in writing.
- B. In the coordination effort of work by others, the Contractor shall obtain and refer to equipment locations and other layouts, as available, to avoid interface problems.
- C. The City reserves the right to permit access to the site of the Work for the performance of work by other contractors and persons at such times that the City deems proper. The exercise of such reserved right shall in no way or to any extent relieve the Contractor from liability for loss and damage to the Work due to or resulting from its operations or from responsibility for complete execution of the Contract. The Contractor shall cooperate with other contractors and persons in all matters requiring common effort.

#### 3.03 CONTRACTOR USE OF WORK SITE

- A. Confine work site operations to areas permitted by law, ordinances, permits, and the Contract.
- B. Consider the safety of the Work and that of the people and property on and adjacent to the work site when determining amount, location, movement, and use of materials and equipment on work site.
- C. Do not load work site with equipment and products that would interfere with the Work. Only equipment, tools, or materials required for this Work may be stored at the work site.
- D. Protect products, equipment, and materials stored on work site.
- E. Relocate stored products, equipment, and materials that interfere with operations of City, government bodies, public, and private utilities, and other contractors.

# 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

#### PART 5 - PAYMENT

#### 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

# SECTION 011400

# WORK SEQUENCE AND CONSTRAINTS

# PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 OTHER WORK

A. Other concurrent construction contracts with which the Contractor must interface are described elsewhere in the Contract Documents. Refer to Section 013210 "Schedule" and the Special Conditions for specific work constraints and milestones.

# 1.03 WORK SEQUENCE

A. The work sequence shall comply with Phasing, Sequencing, and Milestones as indicated in the Contract Documents and in accordance with the approved Construction Schedule developed by the Contractor. The schedule shall comply with requirements indicated in the Special Conditions and Section 011400 "Work Sequence and Constraints". The Construction Schedule is described in Section 013210 "Schedule".

# 1.04 WORK CONSTRAINTS

- A. Site Constraints:
  - 1. Access to the Project shall be generally as indicated in the Contract Documents. Access shall be organized and planned by the Contractor to ensure no disruption of airline or DEN operations.
  - 2. Access to work sites will be strictly monitored and must comply with DEN Airport Operations and FAA Regulations. The Contractor shall provide monitoring and escorts as required by DEN Operations in the area of the Work.
  - 3. The Contractor's staging area will be as indicated in the Construction Documents.
  - 4. Contractor employee parking will not be allowed within the existing revenue control system. Parking facilities will be as indicated in the Construction Documents.
  - 5. Material for work in the Terminal may be brought in through the Terminal Loading Dock accessed via Gate 1. Employee and material access to the Concourses will be via Gate 5.
  - 6. The Contractor shall use the haul routes specified in the Construction Documents.
  - 7. If required, the Contractor shall provide a bus and driver to transport the Contractor's employees between the designated employee parking area and the work sites. No separate payment will be made for this bus and driver. The cost shall be included in the bid item "Mobilization". The bus driver shall be provided at all times when Contractor employees are working on the Project.
- B. System Interruptions:
  - 1. DEN is a 24/7/365 facility. Construction activity that requires any system shutdown must be coordinated with the project manager and DEN AIM MCC.
  - 2. The Shutdown cannot proceed unless all approver groups have approved the request.

If any of the groups rejects the request, you may not proceed with the Shutdown. If a Shutdown is determined to be an emergency due to pending health issues or the risk of additional damage, this process may be bypassed. If the Shutdown is an emergency, proceed with the shutdown without the approvals. Approvals must be obtained as follows

- a. Airfield Shutdowns must be submitted at least 72 hours prior to the shutdown start date.
- b. All other Shutdowns must be submitted at least five (5) business days prior to the shutdown start date.
- c. All Shutdown Requests must be submitted using the Shutdown Request form, which can be accessed via the Home page of the DEN intranet.
- C. Airfield Operations at Denver International Airport:
  - 1. Full airport and aircraft operations are underway adjacent to this Project. Contractors are required to obtain a Contractor Participant Manual from the Security Manager and must follow the guidelines in the manual. Copies of the Contractor section of the manual are available for review at the Denver International Airport Access Services Office.
    - a. If any Work contains requirements for Work activities or access through or in the restricted area, reference Section 011420 "Security Requirements & Sensitive Security Information (SSI)" for requirements.
    - b. If not in a restricted area, the Contractor personnel still must be badged; reference Section 011420 "Security Requirements & Sensitive Security Information (SSI).
- D. Conduct of persons using the Denver Municipal Airport system:
  - Contractor activities shall comply with Airport Operations and Regulation 130
     "TRAFFIC" and Regulation 20 "CONDUCT OF PERSONS USING THE DENVER
     MUNICIPAL AIRPORT SYSTEM" shall be followed at all times. These regulations are
     available from Airport Operations at Denver International Airport.
- E. Operational safety on airports during construction:
  - All Work shall be accomplished in accordance with FAA Advisory Circular AC150/5370-2C, "Operational Safety on Airports during Construction", FAR Part 139 and FAR Part 107 except as herein modified.
- F. Welding Equipment, Procedures and Constraints:
  - 1. Natural gas-powered portable welders or inverter single- and three-phase electric portable welders are the only acceptable welding equipment to be used inside the building basement or tunnel areas. Acceptability of equipment other than the equipment noted above shall be at the sole discretion of the DEN Project Manager.
  - 2. Welding activities inside buildings require submittal of a System Interruption Request (See paragraph "System Interruptions" above). Prior to welding in any area, the Contractor shall locate smoke detectors and shall request interruption of the fire alarm system. Subsequent to the interruption of the fire alarm system and prior to welding activities, the Contractor shall cover and protect smoke detectors until work is complete. Prior to expiration of each interruption of the system, the Contractor shall uncover the smoke detectors.
  - 3. Electrical Service: The Contractor shall be responsible for verifying with the. DEN Project Manager or representatives locations acceptable for accessing electrical power for welders and other electrical equipment feeders. The Contractor shall be responsible for all work and equipment required to install temporary or permanent electrical modifications for construction power and lighting.

|    | GENER  | ATIONS<br>AL REQUIREMENTS<br>DRK SEQUENCE AND CONSTRAINTS  | DENVER INTERNATIONAL AIRPOR<br>RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE<br>CONTRACT NO. 20247629  |  |
|----|--|--|---|--|
|    |  | Power and Lighting for Constructi<br>1) Provide wiring sized to accor<br>accounting for voltage drop.  |   |  |
|    |  |  | eration of the equipment prior to request for<br>s and acceptance of the installation.  |  |
|    |  | c. Permanent installation of electrica<br>be made in accordance with all D   | al branch circuiting for welding equipment shall ivision 26 Specification Sections  |  |
|    | 4.   | · · · · · · · · · · · · · · · · · · ·  |   |  |
|    |  | a. Flash protection for surrounding a  | areas   |  |
|    |  | b. Contractor fire extinguisher in are   |   |  |
|    |  | -  | solely designated as fire watch for each welde  |  |
|    |  | d. Protect all equipment, cable trays  |   |  |
|    |  |  | priate materials to confine sparks and molten   |  |
|    |  | f. All welders shall have been qualif applicable welding code, such as   | ied through welding tests in accordance with<br>but not limited to AWS, ASME, API, within one<br>. Evidence of qualification shall be through   |  |
|    |  | g. All welder qualifications test shall  | be or shall have been administered and<br>sting Agency (ITA), AWS Certified Welding   |  |
|    |  | h. If recertification of welders is requised borne by the Contractor.  | ired, delay costs and retesting costs shall be  |  |
|    | 5.   | ensure ground procedures do not indu<br>or other systems. This review should ta  | ntative's area of work prior to beginning work to<br>ce undesirable charges in steel building systen<br>ake place subsequent to the pre-work meeting.<br>tems, baggage system, hangers, or devices<br>quipment. |  |
| G. | Temporary Power and Lighting for Construction: |  |   |  |
|    | 1.   |  | r all work and equipment required to install lifications for construction power and lighting.   |  |
|    | 2.   | temporary or permanent electrical mod  | r all work and equipment required to install<br>difications for construction power and lighting.  |  |
|    |  | <ul><li>a. Comply with all requirements of N</li><li>b. Flexible cords used for temporary<br/>Article 400, and rated for 'extra-ha</li></ul> | power shall be listed in accordance with NEC  |  |
|    |  |  | conductor with all temporary power circuits.  |  |
|    |  |  | evices and equipment shall be listed and rated  |  |
|    |  | e. Provide ground fault protection for   | r personnel.  |  |
|    |  | -  | be protected from physical damage.  |  |
| H. | Cleaning Equipment and Spoils:                 |  |   |  |
|    | 1.   | Discharge of water, liquids, or chemica storm drainage systems is prohibited.  | als into a building sanitary sewer system or<br>The Contractor shall comply with all Federal,<br>osal of chemicals and equipment wash water.  |  |

The Contractor shall maintain and service all equipment in work areas and collect all wash water, spoils and water from excavations in containers for discharge or removal off site.

- I. Vehicle Permitting for Tunnel and Basement Use:
  - Electric carts require permitting. The Contractor shall provide at least one (1) electric cart for Contractor use during the work in the tunnel and basements of the buildings. Only electric or CNG powered trucks are allowed in the tunnel and basements of the buildings. Only electric or CNG trucks may be used and shall not be parked overnight or for long terms within the tunnel or basements. All vehicles require permitting. Permits may be acquired at the DEN Airport Security Office.
- J. Radio and Cell Phone Use:
  - 1. The Contractor shall have wireless communications in place prior to initiation of work in the tunnel or basements by use of cell phone and/or radio. Radio and cell phone coverage in the tunnels and basements varies in signal strength throughout the campus. An RF Application must be submitted for the Radio equipment intended for use at least 14 days prior to intended use. Include the following radio information:
    - a. Make
    - b. Model
    - c. Frequency
    - d. Effective Radiated Power (ERP)
  - 2. Contractors must receive an approval letter from the RF Systems Manager prior to use of the radio equipment on the DEN campus.
- K. Keys:
  - 1. The Contractor shall be required to contact DEN Maintenance Control to procure keys for access to all rooms having locks in order to gain access. Keys may be checked out at the beginning of each work shift by the Contractor and shall be returned to DEN Maintenance Control at the end of each work shift

# 1.05 COORDINATION

- A. The Contractor will designate a contact person for coordination with the DEN Project Manager and airline tenants. The contact person shall have the authority to make decisions for the Contractor firm and shall have binding signatory power for changes in work. The contact person shall be on site at all times during work activity.
- B. No additional costs shall be considered for coordination activities throughout this project. The Contractor shall include in the Contractor's bid costs for coordination of all activities.

# PART 2 - PRODUCTS (NOT USED)

# PART 3 - EXECUTION

#### 3.01 DUST/PROTECTION BARRIERS

A. HVAC system containment. The Contractor shall submit to DEN Maintenance HVAC and Fire Alarm shutdown requests prior to modifications to the area of work for dust containment. The HVAC system shall be interrupted, re-routed, or blocked off to prevent dust from entering return or supply ducts.

- B. Debris and Protection Barriers:. The Contractor shall construct code-approved and DENapproved dust and debris barriers on both sides of walls and doors that are to be modified. Barriers shall be constructed to allow emergency ingress and egress to and from equipment and spaces. Barriers shall be constructed to allow continual uninterrupted function of building equipment and spaces.
  - 1. Return all removed door hardware to DEN. Label each hardware set correlating the door number of the original hardware set. Coordinate with the DEN Project Manager for storage and return of hardware.

# 3.02 EQUIPMENT

- A. Equipment: CNG-powered equipment is allowed within the buildings. No other fossil fuel equipment may be used within the buildings unless the equipment is directly vented to the building exterior.
- B. Electric: Electric powered equipment is acceptable in the Work area.

# PART 4 - MEASUREMENT

# 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

# PART 5 - PAYMENT

# 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

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# SECTION 011420

# SECURITY REQUIREMENTS & SENSITIVE SECURITY INFORMATION (SSI)

#### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 DESCRIPTION

- A. Each Contractor is required to become a "Participant" in the DEN Airport Security Program (ASP), and must remain in good standing in order to retain Airport Security privileges.
- B. All Contractor employees and all vehicles requiring access to the Secured Area, Sterile Area, and/or any other Controlled Areas shall be required to obtain the proper access authorizations for Airport ID badges and vehicle permits.

#### 1.03 PARTICIPANT OF AIRPORT SECURITY PROGRAM

- A. Contractors are required to become a "Participant" of the ASP. In order to become a "Participant", your company must attend a Participant meeting within the Airport Security Office.
- B. The Contractor shall comply with all Denver Municipal Airport System Rules and Regulations and all Transportation Security Administration (TSA) regulations. Special emphasis should be paid to Denver Municipal Airport System Rules and Regulations Part 20 – Airport Security Rules and Regulations and Part 130 – Operating Vehicles In The Secured Area" and Part 35 – Operations Infraction Accountability Program". The Denver Municipal Airport System Rules and Regulations can be found on the flydenver.com website.
- C. The TSA has the authority to issue civil penalties for failure to adhere to their regulations.
- D. It is the responsibility of the Airport Security Office to ensure all fences and gates are secure. If a Contractor's operations necessitate the frequent use of a particular gate, the Contractor shall place, at the Contractor's expense, two (2) contract security guards at the gate that shall have been trained and certified by the Airport Operations Division to facilitate access to its Work. The Contractor assumes full responsibility for maintaining security once this is done. If the perimeter gate will be used as a haul route, the contractor must also place, at the Contractor's expense, Haul Route Monitors as dictated by the TSA approved Temporary Amendment. Any fines levied against the Airport as a result of the failure by the Contractor to provide adequate security shall be passed on to the Contractor.
  - 1. If the Contractor provides guards or monitors, the Contractor must also supply a shelter for the guards/monitors. The shelter must meet the following requirements:
- E. Guard Shack: Contractor shall provide a 10' x 12' portable building at any access gate used for gate guards use with a portable generator and light plant for night use. The portable building needs to have power, adequate heating/cooling, lighting, portable sanitation unit, light plant, and a pole mounted 24" Diameter convex mirror for guards to view into truck beds. Contractor shall remove and restore Area at project completion. The contractor is responsible for all permitting associated with establishing the guard shacks.

- F. Contractors will be required at all times to have a supervisor or foreman at each work location in Secured, Sterile, and Controlled Areas.
- G. All Work shall be accomplished in accordance with the most current FAA Advisory Circular (AC) 150/5370-2, "Operational Safety on Airports during Construction", 49 Code of Federal Regulations (CFR) Part 1542 and 14 CFR Part 139 except as modified herein.
- H. All Work shall be accomplished in accordance with the most current TSA Security Directives applicable to DEN, except as modified herein.
- I. This Section intends to supplement, modify, change, delete from, or add to the most current FAA AC150/5370-2. Where any paragraph, subparagraph, or clause of the AC is modified or deleted by these supplements, the unaltered provisions of that paragraph, subparagraph, or clause shall remain in effect.

# 1.04 SENSITIVE SECURITY INFORMATION (SSI)

- A. If the Contract involves SSI information or procedures, the Contractor must contact the Assistant Director of Airport Security or designee, for disclosure information, as well as protocols that must be followed with SSI distribution.
- B. This Section governs the maintenance, safeguarding, and disclosure of records and information that the TSA has determined to be SSI as defined by 49 CFR Part 1520, "Protection of Sensitive Security Information". SSI is information that the TSA has determined to be detrimental to the security of Denver International Airport if disclosed to unauthorized persons. This is a process for the documentation, use, and recovery of SSI of a specific origin.
- C. Applicability:
  - 1. For all management staff, all authorized departments, all contractors, and subcontractors handling documents or materials containing SSI information.
  - 2. Each person employed by, contracted to, or acting on behalf of the Department of Aviation at Denver International Airport is subject to the requirements of this Section.
  - 3. SSI disclosure is limited to persons or entities under criteria identified in federal regulations, subject to strict "need-to-know" standard, and as otherwise determined by TSA or the Department of Homeland Security (DHS).
- D. Except as otherwise provided in this Section, records containing SSI are not available for public inspection or copying. Denver International Airport will not release such records to persons without a need to know. Prime contractors will not release SSI records to any subcontractor without a need to know. An employee or contractor has a "need to know" SSI if access to the information is necessary for performance of his or her official duties.
- E. Unauthorized disclosure of SSI is a Federal violation of 49 CFR Part 1520 and violation is grounds for a civil penalty and other enforcement action by DHS Security. In addition to the civil penalties, corrective action may include issuance of an order requiring retrieval of SSI to remedy unauthorized disclosure, an order to cease future unauthorized disclosure, and dismissal from the work site.
- F. Except as otherwise provided in writing by the TSA in the interest of public safety or airport security, the following information and records containing such information constitute SSI:
  - 1. Information that would be detrimental to the security of Denver International Airport and aviation transportation.
  - 2. Any performance specification, including a description of devices and procedures

used by Denver International Airport, for the detection of any weapon, explosive, incendiary, or destructive substance.

- 3. Any performance specification, including a description of devices and procedures, for any communications equipment used by Denver International Airport in carrying out any aviation transportation security requirements.
- 4. Details of any security inspection or investigation of an alleged violation of aviation transportation security requirements of Federal law that could reveal security vulnerability.
- 5. Specific details of aviation transportation security measures including those recommended by the Federal government.
- 6. The following information regarding security screening under aviation transportation security requirements of Federal law:
  - a. Procedures for screening of persons, property, checked baggage, U.S. mail, and cargo.
  - b. Information used by a passenger or property-screening program or system, including an automated screening system.
  - c. Detailed information, if determined by the TSA to be SSI, about the locations at which particular screening methods or equipment are used.
  - d. Performance or test data from security equipment or screening systems.
- 7. Identifying information of certain aviation transportation security personnel including lists of the names or other identifying information that identify persons as having unescorted access to a secure area of the airport.
- 8. Critical aviation asset information identifying systems so vital to the airport that the incapacity or destruction of such assets would have a debilitating impact on aviation security.
- 9. Any information involving the security of operational or administrative data systems identified by the Department of Transportation or DHS as critical to the safety or security of Denver International Airport.
- 10. Solicited or unsolicited proposals, pursuant to a grant or contract, to perform work that relates to security measures.
- G. Restrictions on the Disclosure of SSI:
  - Employees and contractors working onsite have a duty to protect sensitive security information and must take reasonable steps to safeguard SSI in that person's possession from unauthorized disclosure. When a person is not in physical possession of SSI, the person must store it in a secure container such as a locked desk, a locked file cabinet, or in a locked room. SSI is to be disclosed only to persons having a need to know as stated in CFR 1520. Requests for SSI are to be referred to City Project Manager.
  - Prior to receiving SSI records, contractors must sign the "Confidentiality and Non-Disclosure Agreement", Form PS-17, stating that SSI will be guarded from unauthorized persons, that records will be controlled while in use and secured when not in use, and that all SSI plans and records will be returned to the airport or destroyed following the completion of the Project.
  - Return or destruction of SSI documents must be done in a timely manner and documented on the SSI Return or Destruction Compliance Form, Form PS-20. Companies under contract to the City must return or destroy all SSI material following the completion of the Work. Companies not selected during the bidding process must return or destroy all SSI material immediately following the announcement of bid results.

- H. If a record containing SSI is received that is not marked as specified in this Section below, the following steps must be taken:
  - 1. Mark the record as specified in paragraph Part 1 of this Section.
  - 2. Inform the sender of the record that the record must be marked as specified in Part 1 of this Section.
- I. If a person becomes aware that SSI has been released to unauthorized persons, promptly inform the Communication Center Supervisor at 303-342-4020 and request to speak to the on-call Airport Security Coordinator
- J. Marking SSI:
  - 1. In the case of paper records containing SSI, a covered person must mark the record by placing the PROTECTIVE MARKING conspicuously on the top, and the DISTRIBUTION LIMITATION STATEMENT on the bottom, of following parts of the document:
    - a. The outside of any front and back cover, including a binder cover or folder, if the document has a front and back cover.
    - b. Any title page
    - c. Each page of the document
  - 2. Protective Marking:
    - a. SENSITIVE SECURITY INFORMATION
    - b. Distribution Limitation Statement:
    - c. WARNING: This record contains Sensitive Security Information that is controlled under 49 CFR parts 15 and 1520. No part of this record may be disclosed to persons without a "need to know", as defined in 49 CFR parts 15 and 1520, except with the written permission of the Administrator of the Transportation Security Administration or the Secretary of Transportation. Unauthorized release may result in civil penalty or other action. For U.S. government agencies, public disclosure is governed by 5 U.S.C. 552 and 49 CFR parts 15 and 1520
  - 3. In the case of non-paper records that contain SSI, including motion picture films, videotape recordings, audio recording, and electronic and magnetic records, a covered person must clearly and conspicuously mark the records with the protective marking and the distribution limitation statement such that the viewer or listener is reasonably likely to see or hear them when obtaining access to the contents of the record.
- K. Destruction of SSI:
  - 1. When the employee or contractor no longer needs the SSI to carry out their work requirements, the SSI must be returned to the issuing entity or completely destroyed by burning or cross-shredding to preclude recognition or reconstruction of the information.
  - 2. The Contractor shall comply with all the requirements of the Department of Aviation Standards and Procedures, Protection of Sensitive Security Information (SSI) No. 10003 Revised 08/01/15 regarding Contractor Protection of Sensitive Security Information (SSI).

#### 1.05 MISCELLANEOUS

- A. Dumpster Security Requirements:
  - 1. The following procedures must be followed to provide maximum security with all construction projects in public areas unless an exception has been made by the

Airport Security Coordinator (ASC) or designee:

- a. Roll-off dumpsters must have the ability to be covered (hard side) and locked when not in use.
- b. When unlocked and in use, the Contractor shall provide an employee, or a subcontractor's employee, to stand by the dumpster to prevent unauthorized placement of prohibited items
- 2. If the Contractor is not able to have a roll-off dumpster with the ability to be locked, the dumpster shall be removed from the public area when the construction site is inactive.
- B. Contractor Fences (Not Perimeter Fence):
  - 1. If required, the Contractor shall establish and maintain a secure (fenced) perimeter at its primary operations area to include its field offices, staging and storage areas, and maintenance facilities. The responsibility for security within its operations area shall rest solely with the Contractor. Entrance gates to operations areas shall be equipped with a combination of locks to include a lock provided by the City for its use in accessing emergency equipment, should that need arise. The location, size and other physical characteristics of the Contractor's operations area must be approved by the DEN Project Manager prior to its installation.
  - 2. Unless specifically required by the Contract Documents and with the exception of the fenced operations area described above, the Contractor shall install no fences or other physical obstructions on or around the Project work area without the written approval of the DEN Project Manager.

# PART 2 - PRODUCTS (NOT USED)

# PART 3 - EXECUTION

# 3.01 SUBMITTAL FOR AIRPORT ID BADGES

- A. By submitting information for the individual requesting or requiring an Airport ID badge that would permit unescorted access to the Sterile and/or Secured Areas must be fingerprinted and pass a Criminal History Records Check (CHRC) and Security Threat Assessment (STA). Passing a CHRC means the employee shall not have been convicted, given a deferred sentence, found not guilty by reason of insanity or have been arrested and are awaiting judicial proceedings of any felony charge during the ten (10) years before the date of the individual's application for unescorted access authority. For an individual to obtain driver authorization to drive within the Secured Area, the individual must have a valid driver license that allows them to drive their contractor vehicle.
- B. An employee requesting an Airport ID badge must resolve all pending or valid violations before being allowed to proceed in the airport ID badging process. If the employee no longer works for the company and is attempting to be employed by a different company, a management representative from the "new" company must attend the Violation Notice Hearing along with the employee.
- C. Airport ID Badges are obtained as follows:
  - 1. The Contractor shall meet with the City Project Manager to review the procedures and required access points at DEN. The Contractor and the DEN Project Manager shall visit the site to verify the access points. Access points shall be listed and submitted by the Contractor to the DEN Project Manager for review and comment prior to Contractor's application for badging.
  - 2. The Contractor shall designate an Authorized Signatory who must attend an annual class with Airport Security. The Authorized Signatory must be an employee of the

Contractor, have a valid Denver International Airport ID badge. The Authorized Signatory will be authorized to sign for the Contractor on the Fingerprinting and Badge Application Form and will be the primary designation contact for Airport Security related business.

- 3. The Contractor's Authorized Signatory shall schedule a Participant Meeting with the DEN Airport Security Office to review DEN security procedures and receive training on how to ensure that all Participants remain in compliance with Part 20 of the Denver Municipal Airport System Rules and Regulations. A second meeting will be scheduled for the Authorized Signatory to learn how to successfully complete the required forms for Airport ID badges and vehicle permits.
- 4. A CHRC and STA are required for each employee requesting unescorted access to the Secure and/or Sterile Area. The employee will complete the Fingerprinting and Badge Application (two-sided form) and schedule an appointment with the Airport Security Office to have the form reviewed and to be fingerprinted. The Federal Bureau of Investigation will conduct the CHRC and will return the results to the Airport Security Office. For the fee for the Fingerprinting, please see the flydenver.com website. The Transportation Security Administration will process the STA and will return the results to the Airport Security to the Airport Security Office.
- 5. When the Authorized Signatory is notified by Airport Security that the CHRC and STA have cleared, the applicants must come to the Airport Security Office to receive regulated security and driver training. The training will take approximately one (1) hour for security training and approximately two (2) hours for security and driver training.
- 6. All applicants must watch and pass all concepts of a computer based security training module for a Security Identification Display Area (SIDA) Airport ID badge. All individuals requesting driver authorization in the non-movement area must also view an interactive computer based driver training module and complete a test by passing all concepts. In addition, the individual must receive non-movement driver orientation training by the Contractor's driver representative before being allowed to drive on the airfield. Non Movement Orientation training should be conducted annually.
- 7. All Airport ID badges must be immediately terminated upon employee separation from the Contractor or when a need for DEN access no longer exists.
- 8. The Airport ID badges must be returned to the Airport Security Office prior to final payment. All Airport ID badges are issued with an annual expiration date. The expiration date is determined by the birthday of the Airport ID badge holder. Contractors shall notify the DEN Project Manager as soon as possible but in no case less than four (4) weeks in advance of any requirement to extend the Sponsorship status.

# PART 4 - MEASUREMENT

# 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

# PART 5 - PAYMENT

# 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

B. See Section 015525 for Guard Shack method of payment.

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TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 011430 - VEHICLE AND EQUIPMENT PERMITTING

# SECTION 011430

# VEHICLE AND EQUIPMENT PERMITTING

# PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. The Contractor shall comply with the Airport Security Program. Vehicle permits are required for all vehicles operating in the Secured Area. The DEN vehicle permit is required even if the vehicles are operating in the Secured Area but limited to above grade, outdoor activity. Vehicles or machinery operating within buildings shall be required to acquire a DEN emissions permit as well as a DEN vehicle permit.
- B. Special emphasis should be paid to Denver Municipal Airport System Rules and Regulations Part 20 – Airport Security Rules and Regulations and Part 130 – Operating Vehicles In The Secured Area" and Part 35 – Operations Infraction Accountability Program". The Denver Municipal Airport System Rules and Regulations can be found on the flydenver.com website.
  - All Work shall be accomplished in accordance with the most current version of FAA Advisory Circular (AC) 150/5370, "Operational Safety on Airports during Construction", 49 Code of Federal Regulations (CFR) Part 1542 and 14 CFR Part 139 except as modified herein.
  - 2. All Work shall be accomplished in accordance with the most current TSA Security Directives applicable to DEN, except as modified herein.
  - 3. Contractor may access runways, taxiways, and aprons only as necessary and only after establishing radio communications with Airport Operations through the DEN Inspector. No personnel or equipment will be allowed on the runways until radio contact has been made with Airport Operations and permission given.
  - 4. Access to the Movement Area will be limited in order to allow the maximum efficient movement of aircraft. As part of this limitation, the Contractor may be required to only use these areas late at night when there is less aircraft traffic
  - 5. Once admitted into the Secured Area, the Contractor shall proceed directly to the work location by way of the approved haul route. At no time shall a Contractor or any of its personnel enter onto a taxiway, runway, or ramp without proper clearance from the Airport Operations Manager or Assistant Airport Operations Manager. Contractors or individuals violating these requirements for driving in the Secured Area may be subject to fines, suspension, or permanent revocation of their driver authorization and/or Airport ID badge privileges.
  - 6. The Transportation Security Administration (TSA) requires that all operating airports be secured from the general public and has the authority to issue citations for violations of these requirements. It is the responsibility of the Airport to ensure all fences and gates are secure. If a Contractor's operations necessitate the frequent use of a particular gate, the Contractor shall place guards at the gate. Refer to 011420 Security Requirements and SSI for details regarding the placement of guards.
- C. General Safety Regulations When in Aircraft Operations Areas May Include the Following:

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 011430 - VEHICLE AND EQUIPMENT PERMITTING

- 1. At all times, the Contractor shall coordinate its Work with the requirements of the Airport site and operations. All Work, movement of personnel, materials, supplies and equipment in areas used by aircraft shall be subject to regulations and restrictions established by the City. The Contractor shall take special precautions and be fully responsible for the prevention of damage to materials and equipment in the areas affected by the jet blast of taxiing aircraft. No work shall proceed until necessary protective devices are placed as required to protect the public, airport operations, property, and personnel from the hazards of the Work. The Contractor shall proceed with the Contractor's Work, including temporary work and storage of tools, machinery, and materials, to cause no interference with or hazards to the operation of the Airport.
- 2. Landings, takeoffs, and taxiing shall take precedence over all Contractors' operations. In the event that the Contractor is notified that an emergency landing or a takeoff is imminent, the Contractor shall stop all operations immediately, regardless of the sequence of events in progress and shall immediately evacuate the Contractor's personnel and equipment from the runway and taxiway areas as directed.
- 3. The Contractor shall remove its personnel and equipment to the distance specified below for the prevailing conditions:
  - a. For emergencies, the Contractor shall move all personnel and equipment as directed by Airport Operations or the DEN Project Manager.
  - b. At the end of a work day in areas where aircraft are operating, all equipment shall be moved to a location that is not less than 750 lineal feet measured from the near edge of the runway, taxiway or ramp area or to the location designated by the City.
- 4. If the Contractor is asked to leave part of its work site to allow aircraft operation, the Contractor shall clean the area to allow safe aircraft movement. Cleaning may include sweeping the area to prevent damage to aircraft.
- D. Vehicle Permitting:
  - Refer to the Denver Municipal Airport System Rules and Regulations Part 20 Airport Security Rules and Regulations and Part 130 – Operating Vehicles In The Secured Area" and Part 35 – Operations Infraction Accountability Program" for information regarding vehicle permitting. These Denver Municipal Airport System Rules and Regulations can be found on the flydenver.com website.
  - 2. Contractor should contact DEN Project Manager to submit Airfield Access requests for all vehicles and equipment not previously permitted. This includes vehicles and equipment for subcontractors.For additional information regarding permitting, the Contractor must contact DEN Security.
- E. Equipment Permitting
  - 1. Fossil fuel powered equipment to be used in the interior of buildings and/or in basement/tunnel areas shall require inspection by DEN Maintenance and the Denver Fire Department.
    - a. Only CNG fossil fuel powered equipment may be used; gasoline powered, propane powered, or diesel-powered equipment will not be acceptable unless identified and operated per Section 011400 "Work Sequence and Constraints".

# 1.03 SUBMITTALS

- A. Refer to Section 03300 "Submittal Procedures" for submittal procedures
- B. Submit a copy of each vehicle permit and/or equipment and vehicle emissions permit a maximum of fourteen (14) days after receipt of permit.

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 011430 - VEHICLE AND EQUIPMENT PERMITTING PART 2 - PRODUCTS (NOT USED)

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# PART 3 - EXECUTION

# 3.01 PERMITS

- A. Vehicle permits shall not be issued prior to Notice to Proceed. The Contractor may, at the Contractor's own risk, submit required information prior to Notice to Proceed to the following:
  - 1. Airfield Access request: DEN Project Manager.
  - 2. Vehicle permit: DEN Airport Security.
  - 3. Equipment and vehicle emissions permit. DEN Project Manager or DEN Maintenance Group.

# 3.02 SCHEDULE

A. The Contractor shall allow in the Contractor's schedule five (5) days for DEN review of submittals for permits. Testing of equipment and review by the Denver Fire Department shall be scheduled by the Contractor. By submitting information for permits, the Contractor certifies that equipment and vehicles comply with Contract documents and with all City, state and federal regulations including but not limited to emissions, licensing and safety requirements.

# PART 4 - MEASUREMENT

#### 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

#### PART 5 - PAYMENT

#### 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 011430 - VEHICLE AND EQUIPMENT PERMITTING DENVER INTERNATIONAL AIRPORT RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 CONTRACT NO. 202476290

# **SECTION 011810**

# UTILITIES INTERFACE

## PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. Various utilities are located within the limits of work in the Project area. The owners of these utilities may require that the Contractor work around their existing facilities until alterations, relocation, or abandonment have been completed. All known existing utilities are shown; however, the Contractor shall verify and satisfy itself that there are no other existing utilities that may not be shown.
- B. The owners of known utilities within the project area include, but are not limited to:
  - 1. Century Link Telephone
  - 2. DEN Telephone
  - 3. Xcel Energy Natural Gas
  - 4. Xcel Energy Elec. Services
  - 5. DEN Storm Water
  - 6. DEN Sanitary Sewer
  - 7. DEN Deicing Waste
  - 8. Denver Water Department
  - 9. DEN Deicing Supply operated by Inland Technologies
  - 10. Fuel System (ASI)
  - 11. Premise Wiring System- DEN Business Technologies
  - 12. FAA Duct Bank
  - 13. Oil/Gas Wells
  - 14. DEN Electrical Department
  - 15. Fire Alarm System
  - 16. Paging System
- C. The location and establishment of each construction vehicle crossing shall be at sites mutually agreed upon in writing by the Contractor and the owner of the utility.
- D. At the locations where the Contractor needs to establish a construction vehicle crossing over any of the operating pipelines, the furnishing and placing of a crossing shall be by the Contractor. The crossing shall allow the normal operation of the pipeline at all times unless specifically approved by DEN or the owner of the pipeline. Each crossing shall be adequately marked and signed for safe passage of vehicles over the crossing. Construction vehicles shall not be allowed to cross over operating pipelines at any place other than an established crossing.

- E. These utility locations are based upon information provided by the utility companies or previous construction contractors that were the basis for determining utility coordinates. The Contractor is responsible for confirming the accuracy of the provided coordinates with the utility owner.
- F. The Contractor shall control the Contractor's operations in order to avoid creating any obstacles for the utility owner's access for maintaining or operating their equipment.

# 1.03 REFERENCE DOCUMENTS

A. Section 312323.33 "Flowable Backfill (Controlled Low-Strength Material)"

# 1.04 REGULATORY REQUIREMENTS

A. The Contractor shall obtain and pay for all utility company permits, fees, and licenses necessary for the execution of this work. The Contractor shall give all notices and shall comply with all laws, ordinances, rules, and regulations of all authorities having jurisdiction.

# 1.05 QUALITY CONTROL

A. When the Contractor performs any operations that will affect a utility owner, the Contractor shall give timely notice to the utility owner and the DEN Project Manager so that the Contractor's operations may be observed by the utility owner or their representative.

# 1.06 WORK INCLUDED

- A. The Work of this Section includes furnishing all materials, equipment, and labor necessary to provide utility crossings as required and as specified herein and subject to approval by the associated utility owner.
- B. North American Resources has a line passing through airport property. The Contractor shall contact the utility prior to beginning earthwork operations to ascertain any special requirements or conditions required to maintain and protect this service during construction activities.
- C. FAA Underground Duct lines: The FAA has duct lines passing under the site. The Contractor shall contact the FAA prior to beginning earthwork operations to ascertain any special requirements or conditions required to maintain this service during construction activities.

# PART 2 - PRODUCTS

# 2.01 MATERIALS

- A. Suitable cover material shall be in accordance with Colorado Department of Transportation Standard Specifications. Wet, soft, or frozen material, asphalt chunks, or other deleterious substances shall not be used for cover.
- B. Aggregate for road base material shall consist of clean, sound and durable particles of crushed stone, crushed gravel or crushed slag, shall be free from coatings of clay, silt and organic matter, and shall contain no clay balls. Material shall conform to the State of Colorado Standard Specifications for Road and Bridge Construction Class 6 aggregate base unless otherwise specified.
- C. The materials for the load distribution system on top of the cover shall conform to the specification of the American Institute of Steel Construction, the American Institute of

Timber Construction, or the American Concrete Institute, as applicable, depending upon the system agreed upon between the Contractor and utility owner.

- D. Materials for the sleeving of the pipelines shall be purchased by the utility owner at the Contractor's expense.
- E. Comply with utility backfill requirements for the use of flowable backfill in Section 312323.33 "Flowable Backfill (Controlled Low-Strength Material)" and Division 26 and Division 33 requirements.

# PART 3 - EXECUTION

# 3.01 NOTIFICATION OF UTILITIES FOR LOCATING AND POTHOLING

- A. The Contractor shall verify the location of all utilities prior to any operations including physically uncovering the utility to verify location as required by the utility owner.
- B. Update and edit contact information below if required for Project.
- C. The Contractor shall notify the Utility Notification Center of Colorado at (303) 534-6700 or 811, as a minimum for location of utilities.

# PART 4 - MEASUREMENT

# 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

# PART 5 - PAYMENT

# 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

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# **SECTION 012510**

# SUBSTITUTIONS

#### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. All material and equipment substitutions must comply with Title 4, Article 406: Substitution of Materials and Equipment in the General Contract Conditions, 2011 Edition.
- B. The Work specified in this Section consists of submitting form CM-09, Request for Substitution for the approval of a different material, equipment, or process than is described in the Contract Documents.
- C. If the substitution changes to the Scope of Work, Maximum Contract Cost, cost of the Work (if less than the Maximum Contract Cost), or Contract time, a Change Order is required.
- D. As-built drawings and specifications must include all substitutions even if a Change Order is not issued.

#### 1.03 REFERENCE DOCUMENTS

- A. Form CM-09, Request for Substitution
- B. Section 013300 "Submittal Procedures"
- C. Section 013325 "Shop and Working Drawings, Product Data and Samples"

#### 1.04 QUALITY CONTROL

A. The substitution shall provide as a minimum, the same performance as specified.

#### 1.05 SUBMITTALS

- A. Refer to Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples" for submittal procedures.
- B. A completed Form CM-09 shall be submitted at least 60 days prior to when an order needs to be placed or a method needs to be changed.
- C. The submittal shall contain all the data required to be submitted for acceptance of the originally specified item or process, including, as appropriate:
  - 1. Detailed product data sheets for the specified items and the substitution.
  - 2. Samples and shop drawings of the substitution.

# PART 2 - PRODUCTS (NOT USED)

# PART 3 - EXECUTION

# 3.01 SUBSTITUTION PROCESS

A. Provide the information as required on Form CM-09.

# 3.02 SUBSTITUTION REQUEST

- A. The formal Request for Substitution will be evaluated by the DEN Project Manager and the Designer of Record based on the following criteria:
  - 1. Compatibility with the rest of the project.
  - 2. Reliability, ease of use and maintenance.
  - 3. Both initial and long term cost.
  - 4. Schedule impact.
  - 5. The willingness of the Contractor to share equally in any cost savings.
  - 6. The ability of the item or process to meet all applicable governing regulations, rules, and laws along with funding agency requirements.
  - 7. The cost of evaluating the substitution.
- B. Based upon the above evaluation, the Senior Director of AIM Development will make a final determination of what is in the best interest of the City and either approve, disapprove or approve as noted the requested substitution.

# 3.03 CONDITIONS

- A. As a condition for submitting a Request for Substitution, the Contractor waives all rights to claim for extra costs or changes in the costs, schedule, Contract time or Scope of Work, other than those outlined in the request and approved by the Senior Director of AIM Development. The Contractor, by submitting a Request for Substitution, also accepts all liability for cost and scheduling impact on other contractors or the City due to the substitution.
- B. Included with the Request for Substitution shall be the following statement:
  - 1. "The substitution being submitted is equal to or superior in all respects to the Contract-required item or process. All differences between the substitution and the Contract-required item or process are described in this request along with all required information, cost, and scheduling data."
- C. The statement shall be signed and dated by the Contractor's Superintendent.
- D. Replacement of Substitution Found to be Not Equal:. The Contractor shall be responsible for all aspects and conditions of the substitution that are not clearly identified in the substitution submittal, and shall be liable for the appearance, function, performance or other aspects of the substitution that are found not to be equal to the originally specified item.
  - 1. The Contractor shall incur all labor and costs associated with replacement of any substitution that is found to be not equal to the originally specified item or process and rejected by the DEN Project Manager.
  - 2. The replacement of any rejected substitution shall either be with the originally specified item or process, or a substitution approved by the DEN Project Manager.

# PART 4 - MEASUREMENT

# 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

#### PART 5 - PAYMENT

#### 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

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TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 012600 – CONTRACT MODIFICATION PROCEDURES

# **SECTION 012600**

# CONTRACT MODIFICATION PROCEDURES

# PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Special Conditions other Division 01 Specification Sections, and Related Requirements apply to this Section.
- PART 2 PRODUCTS (NOT USED)

# PART 3 - EXECUTION

# 3.01 CHANGE MANAGEMENT PROCEDURES

- A. General Process Requirements
  - 1. Refer to Project Management for Software Requirements Section 013100 Project Management and Coordination.
  - 2. Refer to the City and County of Denver Standard Specifications for Construction General Contract Conditions Title 11 requirements
  - 3. Process
    - a. Change Mechanism Types
      - 1) Change Directive
        - a) DEN directed change/scope changes that are necessary for safety or operations – scope addition is not optional. DEN provides a budget via CD, and the contractor responds via CDR with costs (either actual or negotiated). Once the CDR is approved, a change order may be issued for the difference between the CD and the CDR.
      - 2) Change Notice
        - a) When to use: DEN directed changes/scope for which the contractor can propose costs to do the work. A CN does not mean the work will take place; project impacts, including cost and schedule, must be negotiated and agreed upon before the work takes place. Once the change notice is negotiated, a change order may be issued.
      - 3) Contractor Change Request
        - a) Adverse or changed conditions encountered by the contractor that were not the result of DEN direction; RFI responses that differ from spec that may result in additional cost or schedule. Once the CCR is approved, a change order may be created.
    - b. Non-Standard Contract Changes
      - 1) Suspension
        - a) Suspensions should be recorded through a change notice. The contractor may respond with any associated costs.
      - 2) Termination
        - a) Terminations should be recorded through a change notice. The contractor may respond with any associated costs.
      - 3) Minor Contract Language Change
        - a) Changes to contract language should be recorded through a change notice. In addition to the normal Unifier approval process, Airport Legal

| TECHNICAL SPECIFICATIONS                          |
|---|
| DIVISION 01 – GENERAL REQUIREMENTS                |
| SECTION 012600 – CONTRACT MODIFICATION PROCEDURES |

Services (ALS) should also review and approve of changes in the contract. Common situations where this may occur:

- (1) Project Milestone Changes
- (2) Submittal Requirements
- (3) Insurance Requirements
- (4) Other
- (5) Other
- 4) **Specification Change** 
  - Changes to spec should be recorded through an RFI if possible. If not, a) then a CN may be issued for spec changes. In addition to the normal Unifier approval process, the spec owner/SME should review and approve of the change.
- Major Contract Language Change 5)
  - Major Contract Language Changes require the involvement of Airport a) Legal Services (ALS) and may require additional approval, up to and including City Council. Situations where this may be necessary would include
    - (1) Removal of special conditions, exhibits, or attachments to the contract
    - (2) Increase in contract capacity over a designated value
    - (3) Any other contract change that has not been covered by this section.
- Change orders C.
  - Change Directives, Change Notices and Contractor Change Requests will 1) be executed and incorporated into a contract via a Change order only.
- Β. Submission Requirements
  - Refer to Section 013100 Project Management and Coordination. 1.

#### 3.02 TIMELINE

- Α. The Contract General Conditions (Standard Specifications for Construction General Contract Conditions) Title 11 provides timelines and deadlines for approval. The contractor shall refer to this section of the contract for specific requirements, in addition to any special conditions within the contract.
- The deadlines specified in Title 11 should be applied to the initial submission package for a Β. change. Any requests for revision, including negotiations, will be subject to the following deadlines.
  - 1. If a contractor is asked to revise a final proposal, the revision will be completed and submitted through the designated system within seven (7) calendar days.
  - 2. DEN will have fourteen (14) calendar days to review any revised proposal and provide a recommendation back to the contractor. This includes any reviews of the proposal on behalf of DEN, including third parties, subject matter experts, and Project Manager reviews.

#### **PART 4 - MEASUREMENT**

#### 4.01 METHOD OF MEASUREMENT

No separate measurement shall be made for work under this Section. Α.

#### **PART 5 - PAYMENT**

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 012600 – CONTRACT MODIFICATION PROCEDURES

# 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 012600 – CONTRACT MODIFICATION PROCEDURES

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TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 012910 - SCHEDULE OF VALUES

# **SECTION 012910**

# SCHEDULE OF VALUES

# PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions other Division 01 Specification Sections, and Related Requirements apply to this Section.

#### 1.02 RELATED REQUIREMENTS

- A. The Work specified in this Section consists of preparing and submitting the Schedule of Values ("Schedule") as referenced in the General Conditions. Use the Project Specifications Table of Contents or Schedule of Prices and Quantities (Bid Tabs), if applicable, as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section. The Work also includes the preparing and submitting of updated copies of the Schedule if the Schedule is affected by change orders.
- B. A Schedule of Stored Material is a detailed cost breakdown for permanent materials that will be temporarily stored prior to their being installed and for which the Contractor seeks partial payments. The Schedule of Stored Material will be incorporated as a part of the Schedule of Values.
- C. Within 14 calendar days of issuance of the Notice to Proceed (NTP), the Contractor shall submit the Schedule of Values including the Schedule of Stored Material if applicable. The Schedule of Values and Schedule of Stored Material used to prepare the work/cost breakdown for the Schedule will be used for the Contractor's billings.
- D. D.Any Contract allowances shall be included in the Schedule. Expenditure of allowances shall be done using the Allowance Authorization form. Use of this form does not increase or decrease the Contract value.

#### 1.03 RELATED DOCUMENTS

- A. Title 9 Compensation of the General Contract Conditions, 2011 Edition
- B. Section 013300 "Submittal Procedures"
- C. Section 013325 "Shop and Working Drawings, Product Data and Samples".
- D. Form CM-89, Schedule of Values
- E. Form CM-91, Schedule of Values for Unit Price Contracts

#### 1.04 SUBMITTALS

- A. The Schedule of Values shall be formally approved by the DEN Project Manager.
- B. The Schedule shall identify each item of work. Work items in the Schedule shall represent all Work and shall be referenced with the Technical Specifications section numbers, specification subparagraph, specification section title and the bid item number used for the Schedule of Prices and Quantities when applicable.

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 012910 - SCHEDULE OF VALUES

- C. Upon request by the City, the Contractor shall support values given with the data that will substantiate the correctness of the values.
- D. The Schedule will be utilized only as a basis for review of the Contractor's application for progress payment.

# 1.05 REVIEW AND RESUBMITTAL

A. If review by the DEN Project Manager indicates that changes to the Schedule are required, the Contractor shall revise and resubmit the Schedule.

# PART 2 - PRODUCTS (NOT USED)

# PART 3 - EXECUTION

# 3.01 PREPARING SCHEDULE OF VALUES

- A. Provide a breakdown of the Contract Price in enough detail to facilitate continued evaluation of Applications for Payment and progress reports.
- B. Breakdown of the items used in the Schedule shall include the following item costs. Ensure each item is complete:
  - 1. Delivered cost of product with applicable taxes paid.
  - 2. Total installation cost with overhead and profit.
  - 3. Breakdown costs of each lump sum item with a list of products and major operations for which the Contractor seeks to receive progress payments to recover the Contractor's costs for that bid Item.
  - 4. Each unit price item as listed in the bid Schedule of Prices and Quantities shall list products and major operations for which the Contractor seeks to receive progress payments for that bid item.

# 3.02 PREPARING SCHEDULE OF STORED MATERIAL

- A. The Contractor shall submit with the Schedule an indication of whether products will be stored on or off the work site. The Schedule of Stored Material shall show all quantities and types of products that will be stored.
- B. Material allowances consist of only the net cost of the product, the cost of delivery and unloading at the storage site, the cost of applicable sales taxes, and all discounts.
- C. In no case will the cost paid for a permanent material be greater than 90 percent of the Contract price for the Work in which they are included.

# 3.03 PAYMENT FOR STORED MATERIALS

- A. Only materials that are described in the specifications and on the drawings will be considered permanent materials. Permanent materials are materials that will be left in the Work after the Contract is completed.
- B. Nothing in these specifications shall be interpreted as requiring the City to pay for stored materials. The DEN Project Manager shall decide on a case-by-case basis whether stored materials shall be paid for. No payment will be made for stored materials that have not been submitted and accepted.

- C. The Contractor must, at all times, store permanent materials in accordance with manufacturer's recommendations. Any material not properly stored will not be paid for. Amounts will be deducted from payments for any stored permanent material previously paid for and subsequently found to be improperly stored or not present, based upon a physical inventory of stored permanent material.
- D. Only the neat line quantity of material needed for the finished product may be paid for.
- E. All requests for stored permanent material payment must be accompanied by paid invoices clearly showing the quantity of permanent material, the type of permanent material and discounts or rebates and the net amount paid to the supplier along with a certificate stating that the permanent material is free of any liens or judgments preventing its use by the City.
- F. If the permanent material is stored outside the Denver area the Contractor must pay for the City representative's transportation and lodging to see the stored material as needed. Acceptable lodgings must, as a minimum, have a Mobil Travel Guide Rating Criteria® rating of Two-Star or the American Automobile Association Lodging Listing Requirements & Diamond Rating Guidelines® rating of Two Diamonds. The minimum transportation shall be by regularly scheduled commercial air carrier at coach rates. The DEN Project Manager will determine if an overnight stay is required.
- G. All permanent material stored off site, for which payment is being requested, must be insured and stored in bonded, insured warehouses. The Contractor shall provide proof of insurance for all material stored off site, and specific address and storage conditions of storage location.
- H. Any permanent material on which payment is requested must be in such a form that it cannot be used on work other than this Contract, or stored in a manner acceptable to the DEN Project Manager to ensure that the permanent material cannot be used on work other than this Contract.

# 3.04 ALLOWANCE AUTHORIZATION AND PAYMENT

- A. Contractor shall request written approval for expenditure of any Contract allowances PRIOR TO performing the Work involved. List work to be performed and estimated cost in the requesting correspondence.
- B. Original copies of all invoices and receipts must be submitted with the Allowance Authorization as part of the request for payment.
- C. Using the format provided by the City, the Contractor's request for payment of all Contract allowances shall be included in the Schedule of Values.

# PART 4 - MEASUREMENT

# 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

# PART 5 - PAYMENT

#### 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

# END OF SECTION 012910

# **SECTION 013100**

# PROJECT MANAGEMENT AND COORDINATION

# PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations and coordination with other stakeholders and adjacent Contractors on the Project including,
  - 1. Subcontractor's Acceptance Certification and Subcontractors List.
  - 2. General Coordination Procedures.
  - 3. Contract Administration Procedures.
  - 4. Current Project Management Information Systems (PMIS)
  - 5. Coordination drawings.
  - 6. Current DEN Asset Management Systems
  - 7. Requests for Information (RFIs).
- B. Related Requirements:
  - 1. Section 011100, "Summary of Work" for a description of the division of work among separate contracts and responsibility for coordination activities not in this Section.
  - 2. Section 011400 "Work Sequence and Constraints" for shutdown requests and coordinating with airport operational activities.
  - 3. Section 011420 "Security Requirements and Sensitive Security Information (SSI)".
  - 4. Section 013210 "Schedule" for preparing and submitting Contractor's Construction Schedule.
  - 5. Section 013223 "Construction Layout, As-built and Quantity Surveys" for coordinating, survey activities and survey related record documents.
  - 6. Section 013300 "Submittal Procedures."
  - 7. Section 013325 "Shop and Working Drawings, Product Data and Samples".
  - 8. Section 017720 "Contract Closeout" for coordinating closeout of the Contract.
  - 9. Section 017419 "Construction Waste Management and Recycling".
  - 10. DEN Building Information Modeling (BIM) Design Standards Manual (DSM)

#### 1.03 DEFINITIONS

A. RFI: Request from the DEN Contractor DEN Project Manager seeking information required by or clarifications of the Contract Documents.

# 1.04 SUBMITTALS - SUBCONTRACTORS ACCEPTANCE CERTIFICATION AND SUBCONTRACTORS LIST

- A. To comply with Section 502.2 in the General Contract Conditions, 2011 Edition, the Contractor must complete and submit form CM-02 Subcontractor Acceptance Certification for each Subcontractor working on the project. Additionally, the Contractor must 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.
- B. Provide emergency contacts list to the DEN Project Manager prior to any site activities. List must contain project name, number, location, company name and address, name and title of emergency contacts in order and time and assigned responsibilities. Keep list current and accurate at all times. Include any specific security arrangements or special projects requirements.
- C. Within two (2) days of Notice to Proceed, the Contractor shall submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identifying individuals and their duties and responsibilities listing addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Providing names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.
  - 1. Post copies of the accepted list in project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

# 1.05 GENERAL COORDINATION PROCEDURES

- A. Coordination with other Contractors:
  - 1. For details on coordinating with other Contractors, refer to Article 701 Cooperation with Other Work Forces, Article 702 Coordination of the Work, and Article 703 Coordination of Public Contact in the General Contract Conditions, 2011 Edition.
- B. Minimum cooperation requirements with other contractors include the following, unless directed by the DEN Project Manager in writing:
  - 1. Regular meetings, minimum weekly.
  - 2. Construction schedule coordination.
  - 3. Staging area and access planning (to include employee shuttle routes).
  - 4. Deliveries.
  - 5. Traffic control.
  - 6. When and where required or specified, the Contractor shall develop appropriate coordination drawings for use by interfacing adjacent parties using the Denver International Airport site.
- C. The following is a list that includes, but is not limited to, all of the contractors that will be working in the area of the project limits:
- D. Coordination with DEN entities shall include but is not limited to the following:
  - 1. Coordinate with Owner Contracted Communication Contractor.
  - 2. Coordinate with Utility Companies for utilities that are single sole source.
  - 3. Coordinate with Airport Security and DEN Maintenance for all security related services.
  - 4. Coordinate with DEN Life Safety Team for all issues related to fire alarm, fire protection systems in addition to compliance with all regulatory agencies.
  - 5. Coordinate all shutdowns and system interruptions in accordance with section 011400 "Work Sequence and Constraints."

# 1.06 CONTRACT ADMINISTRATION PROCEDURES

- A. This Project will be administered in part using the current Project Management Information System (PMIS). Any processes necessary to properly administer the Contract and not included in the list below shall be addressed as acceptable to the DEN Project Manager. DEN Project Manager may modify the list below in serialized correspondence without constituting a change to the Contract. Administrative tools and processes shall not in any form waive any contractual or legal requirements of the law or the Contract. The Contractor shall attend all coordination meetings with the DEN Project Manager and the DEN Project Control Administrators to arrange for staff training, and technical support to facilitate the execution of electronic data management and control.
- B. Project Management Information Systems (PMIS): Oracle Unifier Enterprise Project Portfolio Manager (EPPM), or the Oracle Primavera P6.
- C. All submittals, RFIs, Pay Applications, Correspondence, change requests, and pricing proposals and settlement agreements shall be recorded and submitted using the current PMIS:
  - 1. The Contractor shall follow the specified PMIS Access Request Procedure and adhere to all user license conditions.
  - 2. The Contractor shall sign the Information Technology Agreement (ITA) to comply with the DEN computer system security requirements and any contractual obligation to the software and service providers for the current PMIS software
  - 3. DEN will train the Contractor's staff on the use of the PMIS.
  - 4. At a minimum, the Contractor shall provide computer hardware and software to meet the following requirements and to run the following programs, as required for the project:
    - a. Internet connectivity that provides the necessary high-speed connection to perform all activities indicated in this Contract.
    - b. Internet Explorer version 8 or higher.
    - c. Based on the project, a specific Java JRE application may be required, which can be downloaded from the Internet. If needed, the revision and update number will be provided at NTP.
    - d. Other files capability pre-approved by the DEN Project Manager or as required by the DEN BIM Execution Plan
    - e. Most current version of Revit, as per DEN requirements.

# 1.07 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, BIM Design Standards Manual and BIM Project Execution Plan (BPXP), and additionally where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity. Coordination drawings will be the result of a Contractor driven Spatial Coordination effort as spelled out in the BPXP.
  - 1. Field verify all existing dimensions and any as-built dimensions, whether built by the Contractor or others, necessary to produce accurate coordination and working drawings.
  - 2. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
    - a. Use applicable Models/Drawings as a basis for preparation of coordination

|    | GENEF | CATIONS DENVER INTERNATIONAL AIRPOR<br>RAL REQUIREMENTS RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE<br>COJECT MANAGEMENT AND COORDINATION CONTRACT NO. 20247629   |
|----|-------|--|
|    |       | drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.  |
|    |       | b. Coordinate the addition of trade-specific information to the coordination drawings<br>by multiple contractors in a sequence that best provides for coordination of the<br>information and resolution of conflicts between installed components before<br>submitting for review.   |
|    |       | <ul> <li>Indicate functional and spatial relationships of components of architectural,<br/>structural, civil, mechanical, and electrical systems.</li> </ul>   |
|    |       | d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.  |
|    |       | e. Show location and size of access doors required for access to concealed dampers, valves, and other controls.  |
|    |       | f. Indicate required installation sequences.   |
|    |       | g. Indicate dimensions shown on the Models/Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to DEN Project Manager indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract. |
| В. |       | dination Drawing Organization: Using software as in the BPXP, the Contractor shall dinate these systems per floor or zone per BPXP, and as follows:  |
|    | 1.    | Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.                              |
|    | 2.    | Plenum Space: Indicate subframing for support of ceiling and wall systems,<br>mechanical and electrical equipment, and related Work. Locate components within<br>ceiling plenum to accommodate layout of light fixtures indicated on Drawings. Indicate<br>areas of conflict between light fixtures and other components.  |
|    | 3.    | Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire alarm, and electrica equipment.   |
|    | 4.    | Structural Penetrations: Indicate penetrations and openings required for all disciplines   |
|    | 5.    | Slab Edge and Embedded Items: Indicate slab edge locations and sizes and location of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeepin pads, and similar items.   |
|    | 6.    | Mechanical and Plumbing Work: Show the following:  |
|    |       | <ul> <li>Sizes and bottom elevations of ductwork, piping, and conduit runs, including<br/>insulation, bracing, flanges, and support systems.</li> </ul>  |
|    |       | <ul> <li>b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.</li> <li>c. Fire-rated enclosures around ductwork.</li> </ul>   |
|    | 7.    |  |
|    | 1.    | Electrical Work: Show the following:<br>a. Runs of vertical and horizontal conduit.  |
|    |       | <ul> <li>b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire-<br/>alarm locations.</li> </ul>   |
|    |       | <ul> <li>Panel board, switchboard, switchgear, transformer, busway, generator, and<br/>motor control center locations.</li> </ul>  |
|    |       | d. Location of pull boxes and junction boxes dimensioned from column centerlines.  |

- 8. Fire-Protection System: Show the following:
  - a. Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.
- C. Review: DEN Project Manager will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If DEN Project Manager determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, DEN Project Manager will so inform Contractor, who shall make changes as directed and resubmit.
- D. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:
  - 1. File Preparation Format: Same digital data software program, version, and operating system as original Drawings, unless approved otherwise by DEN Project Manager.
  - 2. File Preparation Format: Provided in the Project BIM Execution Plan operating in Microsoft Windows operating system.
  - 3. File Submittal Format: Submit or post coordination drawing files as required in the Project BIM Execution Plan.
  - 4. The submittal must be logged in accordance with the submittal procedure
  - 5. For Fire Protection system; provide shop drawing and design calculations as approved by the building department. Submit as-built drawings in format as outline in BPXP.
  - 6. For all projects, receiving official variance from the BIM requirements not utilizing BIM, coordination drawings must be submitted in acceptable digital format shall be in an industry recognized 3D AutoCAD model.
  - 7. BIM File Incorporation: DEN Project Manager will incorporate Contractor's coordination drawing files into Building Information Model for Revit as established for Project.
    - a. Contractor shall lead three-dimensional component conflict analysis as part of preparation of coordination drawings. Resolve component conflicts prior to submittal. Indicate where conflict resolution requires modification of design requirements by Architect or other sub-consultants.
  - 8. DEN Project Manager will furnish Contractor one (1) set of digital data files of Models and/or Drawings for use in preparing coordination digital data files.
    - a. The Design consultants and Contractors and Sub Contractors acknowledge and represent the following Right Of Reliance regarding Electronic Models and/or Drawing deliverables:
      - 1) Models may be transferred for allowing the recipients to develop derivative models to develop the means and methods by which to construct the project.
      - 2) It must be clear that each party be able to rely on the fact that the model furnished by others "match the 2D Contract Documents or shop drawings in their equivalent state of development"

# 1.08 COORDINATION WITH DEN ASSET MANAGEMENT SYSTEM:

- A. The full intent is to produce comprehensive record documents integrating existing data in the form of digital files and models, reconciled to actual field conditions, modifications or additions facilities or components of existing facilities according to new Contract Documents, and to produce record documents that could be incorporated into DEN asset management system.
- B. Utilize the BIM to link all necessary data content to the model and follow the BPXP as

collaboratively modified by the Contractor, Designer, and DEN BIM Administrators and approved by DEN Project Manager

- C. Provide the following information through the execution of the Contract for all elements and element types that DEN has designated as assets. The information shall include but is not limited to:
  - 1. Project title, number, project manager contact information, contractor and subcontractor contact information
  - 2. Pertaining shop drawings
  - 3. Operational Manuals and safety information, MSDS and cut sheets, and any pertinent technical information.
  - 4. Details of all components' maintenance procedures and requirements.
  - 5. Details of all applicable warranties including but not limited to; warranty providers, manufacturers information, warranty start and finish dates, contacts, bonding company name, consent of surety,
  - 6. Equipment location (by room number and location description or grid location format acceptable to DEN Project Manager, for civil projects), equipment make, model, serial number, and other asset information as outlined in the DEN BIM DSM
  - 7. List of all spare parts including but not limited to; equipment make and model, location, submittal number or link, and suppliers reordering information
  - 8. Commissioning results, acceptance criteria, test reports, and Tab reports

# 1.09 REQUESTS FOR INFORMATION (RFIS)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI through the PMIS
  - 1. DEN Project Manager will distribute the RFIs to the proper entities.
  - 2. DEN Project Manager will coordinate and submit RFIs in a prompt manner to avoid delays in Contractor's Work or work of subcontractors
- B. DEN Project Manager has the right to reject RFIs or those that do not contain proper information and required data to properly evaluate the request and respond in a timely manner.
- C. RFIs: Use PMIS to generate RFIs.
  - 1. Attachments shall be electronic files in Adobe Acrobat PDF format.
  - 2. Attachments include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
    - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- D. For projects not using Unifier to create the RFI, the RFI must include a detailed, legible description of item needing information or interpretation and the following:
  - 1. Project name.
  - 2. Project number.
  - 3. Date.
  - 4. Name of Contractor.

- 5. Name of DOR and DEN Project Manager.
- 6. RFI number, numbered sequentially.
- 7. RFI subject.
- 8. Specification Section number and title and related paragraphs, as appropriate.
- 9. Drawing number and detail references, as appropriate.
- 10. Field dimensions and conditions, as appropriate.
- 11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
- 12. Contractor's signature.
- 13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
- E. DEN Project Manager will review each RFI, determine action required, and respond. RFIs received by DEN Project Manager after 1:00 p.m. will be considered as received the following working day. Direct responses by any entity other than DEN Project Manager shall not be binding to the City and County of Denver. E-mails, and verbal conversations must be followed by an official RFI or proper contractual vehicle before it is considered for any additional compensation or time impact to the project terms and conditions.
  - 1. The following Contractor-generated RFIs will be returned without action:
    - a. Requests for approval of submittals.
    - b. Requests for approval of substitutions.
    - c. Requests for approval of Contractor's means and methods.
    - d. Requests for coordination information already indicated in the Contract Documents.
    - e. Requests for adjustments in the Contract Time or the Contract Sum.
    - f. Requests for interpretation of DEN Project Manager's actions on submittals.
    - g. Incomplete RFIs or inaccurately prepared RFIs.
  - 2. DEN Project Manager's action may include a request for additional information, in which case DEN Project Manager's time for response will date from time of receipt of additional information.
  - 3. DEN Project Manager'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 Title 11 - Changes In the Work, Contract Price, or Contract Time in the General Contract Conditions, 2011 Edition as amended by Special Conditions.
  - 4. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify DEN Project Manager in writing within five (5) days of receipt of the RFI response or the time required by Title 11 Changes In the Work, Contract Price, or Contract Time in the General Contract Conditions, 2011 Edition
- F. RFI Log: For projects not utilizing the PMIS application, prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. The log shall include but not limited to the following data:
  - 1. Project name.
  - 2. Name and address of Contractor.
  - 3. Name and address of DEN Project Manager.
  - 4. RFI number including RFIs that were returned without action or withdrawn.

- 5. RFI description.
- 6. Date the RFI was submitted.
- 7. Date DEN Project Manager's response was received.
- PART 2 PRODUCTS (NOT USED)
- PART 3 EXECUTION (NOT USED)
- **PART 4 MEASUREMENT**

#### 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

#### PART 5 - PAYMENT

#### 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

# END OF SECTION 013100

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 013119 - PROJECT MEETINGS

# **SECTION 013119**

## PROJECT MEETINGS

#### PART 1 - GENERAL

# 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. The Work specified in this Section requires the Contractor's Project Manager, Superintendent, and Quality Control representative to attend meetings scheduled by the DEN Project Manager for the collection and dissemination of information related to the subject Contract.
- B. The DEN Project Manager will prepare the minutes of each meeting and distribute them to each of the participants.

#### 1.03 REFERENCE DOCUMENTS

- A. Form CM-01, Preconstruction Meeting Agenda
- B. Form CM-62, Construction Meeting Agenda/Minutes

#### 1.04 OTHER MEETINGS

- A. The Contractor shall attend all other project related meetings as directed by the DEN Project Manager.
- PART 2 PRODUCTS (NOT USED)

#### **PART 3 - EXECUTION**

#### 3.01 PRECONSTRUCTION MEETING

- A. A Preconstruction Meeting will be scheduled by the DEN Project Manager after the Contract has been signed by all parties. The purpose of this meeting is to introduce the City's Representatives to their counterparts in the Contractor's organization and to establish lines of communication between these representatives and outline some Contract requirements. The Contractor's key personnel shall attend this meeting.
- B. The DEN Project Manager will distribute a notice of this meeting, along with an agenda of the subjects to be addressed. Refer to form CM-01, Preconstruction Meeting Agenda.
- C. The DEN Project Manager will explain and discuss the responsibilities and authorities of the City, the Designer of Record, and the DEN Project Manager's organization.
- D. The Contractor shall introduce the Contractor's key personnel, subcontractors, and representatives and briefly describe each person's responsibilities.

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 013119 - PROJECT MEETINGS

- E. The Contractor shall prepare a presentation with the items outlined in the CM-01, Preconstruction Meeting Agenda, at a minimum.
- F. Explanations provided by the DEN Project Manager will not amend, supersede, or alter the terms or meaning of any Contract document, and the Contractor shall not claim reliance on such explanations as a defense to any breach or failure by the Contractor to perform as specified in the Contract.

# 3.02 CONSTRUCTION PROGRESS MEETINGS

- A. Progress meetings will be scheduled weekly and more often as necessary by the DEN Project Manager to promote the competent and timely execution of the Contract.
- B. The meetings will be held at the work site or at a location selected by the DEN Project Manager. Meetings will be chaired by the DEN Project Manager or the DEN Project Manager's representative.
- C. The Contractor's key personnel shall attend unless otherwise agreed by the DEN Project Manager.
- D. At a minimum, and as directed by the DEN Project Manager, the items detailed in CM-62, Construction Meeting Agenda/Minutes shall be addressed at each meeting. The items addressed in the meeting do not waive notification or submittal requirements as required elsewhere in the Contract.
- E. The DEN Project Manager will be responsible for publishing minutes of the meetings. Refer to form CM-62, Construction Agenda/Meeting Minutes.

# PART 4 - MEASUREMENT

#### 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

# PART 5 - PAYMENT

#### 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

# END OF SECTION 013119

# **SECTION 013210**

# SCHEDULE

## PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. The Work specified in this Section describes the procedures and requirements for scheduling and documenting the progress of the project:
  - 1. Design Schedules
  - 2. Preliminary Construction Schedule
  - 3. Initial Project Construction Schedule (IPS)
  - 4. Monthly Progress Schedule update
  - 5. As-built Schedule
  - 6. Special reports:
    - a. Weather impacts and mitigations
    - b. Unforeseen Conditions and mitigations
    - c. Recovery Schedule and alternatives

#### 1.03 REFERENCE DOCUMENTS

- A. Article 1105 Time Extensions in the General Contract Conditions, 2011 Edition.
- B. Section 011100 "Summary of Work"
- C. Section 011420 "Work Sequence and Constraints".
- D. Section 012910 "Schedule of Values".
- E. Section 013119 "Project Meetings"
- F. Section 013300 "Submittal Procedures"

#### 1.04 SUBMITTALS

- A. Submit for City acceptance the following in accordance with Section 01 33 00 Submittal Procedures:
  - 1. Project Scheduler Qualifications
  - 2. Design Schedules
  - 3. Preliminary Project Construction Schedule
  - 4. Initial Project Construction Schedule
  - 5. Monthly Progress Update Schedules
  - 6. Time Impact Analysis, when necessary

- 7. As-built Schedule
- B. Scheduler/Scheduling Consultant Qualifications:
  - 1. A professional with a minimum of two (2) years of experience with scheduling design and construction projects similar in size and scope of work as this project using Oracle Primavera P6 software.
  - 2. The scheduler shall have a comprehensive knowledge of Critical Path Method (CPM) scheduling principles and application.
  - 3. The scheduler shall produce reports and diagrams within 24 hours of the DEN Project Manager's request and perform tasks, including but not limited to, the following:
    - a. Create, maintain and update the project design and construction schedule, including but not limited to baseline schedule management, cost and resource loading, time impact analysis, and schedule progress analysis.
    - b. Prepare monthly progress schedule updates, submit for review and incorporate the City's review comments into the schedule.
    - c. Coordinate the participation of qualified personnel to assist in the development of the initial design and construction schedule and updating of the monthly progress schedule.
    - d. Develop a Work Breakdown Schedule (WBS) to the appropriate level and be able to discuss verbally and in writing the applicability of the WBS.
    - e. Incorporate milestone dates for Owner-furnished products and deliverables.
    - f. Incorporate submittal requirements, procedures and time required for review of submittals and resubmittals.
    - g. Incorporate requirements for tests and inspections by independent testing and inspecting agencies.
    - h. Incorporate required meetings, such as Safety and Pre-work meetings.
    - i. Incorporate time required for Project closeout and Owner start-up procedures, including commissioning activities.
    - j. Adhere to contract specifications and requirements.
- C. Schedule Submittal Package Requirements:
  - 1. XER/XML file compatible with the latest version of Oracle Primavera P6
  - 2. PLF File (if XER)
  - 3. Narrative report including the following:
    - a. Prepare an accurate statement of the project's progress status to assist in decision making.
      - 1) Contract Milestone Dates, Current Schedule Dates
      - 2) Activities started or completed since last update
      - 3) Identify deviations from the baseline schedule and evaluate possible corrective actions.
      - 4) Logic Changes
      - 5) Critical Path Analysis / Schedule Risks
      - 6) Upcoming Activities that are impacted by or may impact stakeholders
      - 7) Change Order Activities
      - 8) Weather and other delays
    - b. A standard layout will be provided to the contractor.
  - 4. PDF of the following:
    - a. Full Schedule View
    - b. Critical Path
    - c. Three Week Lookahead

# 1.05 SCHEDULE PREPARATION REQUIREMENTS

- A. Schedules should meet the requirements outlined in the "Schedule Approval Checklist" (Appendix 1) and the "Contractor Schedule Package" (Appendix 2). Contractor shall obtain current versions of Appendix 1 and 2 from the DEN Project Manager for use in developing the schedule. These requirements utilize the following documents as references for best practices:
  - 1. AACE Recommended Practices (RP)
  - 2. USACE Project Schedules Regulation ER\_1-1-11
  - 3. DCMA 14-Point Schedule Assessment
- B. Projects regulated by the FAA must follow all FAA scheduling requirements, in addition to the requirements provided by DEN. In the event of a conflict between the DEN and FAA scheduling requirements, the more stringent requirement shall apply.
- C. The schedule shall satisfy, at minimum, the following criteria:
  - 1. Prepare all Project Schedules utilizing the Critical Path Method (CPM) of network calculation to generate all schedule reporting.
  - 2. Show in the schedule, the proposed sequence to perform the work and dates contemplated for starting and completing the schedule activities.
  - 3. The scheduling of the entire project is required.
  - 4. Provide a schedule that is forward planning as well as a project monitoring tool
  - 5. Contractors, Design management personnel and DEN PMT/Stakeholders shall actively participate in its development.
  - 6. Subcontractors and suppliers working on the project shall also contribute in developing and maintaining an accurate project schedule.
  - 7. The contractor shall keep the subcontractors and suppliers informed of the Project Construction Schedule to enable the subcontractors to plan and perform their work properly.
  - 8. All schedules shall comply with the City and County of Denver General Contract Conditions (GC)
  - 9. The schedule WBS will align with the approved schedule of values, as determined by the DEN Project Management Team, and contain, at minimum, the following milestone activities:
    - a. Start
    - b. Mobilization Complete
    - c. Substantial Completion
    - d. Final Completion
    - e. DEN reserves the right to request additional milestones to be included in all schedules as appropriate for each projects. The additional reporting requirements will be communicated by the Project Manager and PMO.
- D. Cost and Resource Loading of P6 Schedules
  - 1. All schedules shall be cost loaded using the Lump Sum resource. Cost loading will align with the approved schedule of values, as determined by the DEN Project Management Team.
  - 2. Period Performance shall be stored for each schedule update provided to DEN.
  - 3. All schedules will be resource loaded with manhours by critical trade. Additional resource loading requirement may be required by DEN PMT.

- E. Layout Requirements (.PLF)
  - 1. Project Layout Files (.PLF) will be created to standardize the information provided to DEN from the schedule, and the .PLF will be used to create the PDF schedule documents as part of the submittal package.
  - 2. All PDF's will contain both the table and the Gantt Chart, and will be scaled to fit timescale to 1 page wide. Additionally, the following information will be displayed:
    - a. Table will contain: Activity ID, Activity Name, Baseline Start, Baseline Finish, Original Duration, Start, Finish, Duration at Completion, Finish Variance, Total Float
    - b. Gantt Chart:
      - 1) Timescale shall show the entire project schedule without cutting off any data
      - 2) In the Bar Options, the following Bars shall be displayed: Remaining Level of Effort, Actual Level of Effort, Primary Baseline, Actual Work, Remaining Work, Critical Remaining, Start Constraint, Finish Constraint, Milestone, Summary, Negative Float Bar. Activity names will be included as the bar label.
      - 3) In the Bar Chart Options, "Show Relationships" shall be checked.
      - In the print layout, the header shall include at minimum the data date, current date, filter, project name, schedule update version, and contractor. The footer shall contain at minimum the legend and page count.
  - 3. Full Schedule View will not be filtered, all activities will be shown.
  - 4. Critical Path view will be filtered to show only the critical Activities.
  - 5. Three Week Lookahead View will be filtered to show activities completed in the past week, or activities that are in progress or not started for the next three weeks.
  - 6. Additional information or reports may be requested at the DEN Project Management Team's discretion, including but not limited to cash flow, manhours graph, earned value, period performance.
- F. Withholdings / Payment Rejection
  - 1. Failure to meet the requirements of this Section may result in the disapproval of the schedules or updates and subsequent rejection of payment requests until requirements are met.
  - 2. If the DEN Project Manager directs schedule revisions and those revisions have not been included in subsequent Project Schedule revisions or updates, the DEN Project Manager may withhold 10 percent of pay request amount for each payment period until such revisions to the project schedule have been made.

# 1.06 COORDINATION

- A. Pre-scheduling Conference: Schedule conference at Pre-Construction meeting to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to setting up the Preliminary Project Design and / or Construction Schedule and Initial Project Construction Schedule, including, but not limited to, the following:
  - 1. Verify availability of qualified personnel needed to develop and update schedule.
  - 2. Review content and format for reports.
  - 3. Discuss constraints, including phasing, area separations, interim milestones, stakeholder requirements and partial Owner occupancy.
  - 4. Review milestone dates for Owner-furnished products and deliverables.
  - 5. Review submittal requirements and procedures.

**DIVISION 01 – GENERAL REQUIREMENTS** 

TECHNICAL SPECIFICATIONS

SECTION 013210 - SCHEDULE

- 6. Review time required for review of submittals and resubmittals.
- 7. Review time required for Shutdown request and approval.
- 8. Review requirements for tests and inspections by independent testing and inspecting agencies.
- 9. Review time required for Project closeout and Owner startup procedures, including commissioning activities.
- 10. Review procedures for updating schedule.
- 11. Review requirements for content and input of direct man-hour resources in activities.
- 12. Review requirements for cost loading of activities.
- 13. Coordinate Initial Project Construction Schedule with the Schedule of Values and Schedule Template.
- 14. Secure time commitments for performing critical elements of the Work from entities involved.
- B. Construction Coordination: If there are activities in the schedule that are impacted by DEN, DOR, other contractors or other stakeholders, a periodic meeting will be set up with all stakeholders to evaluate the schedule and confirm dates for activities outside of the contractor's control. The contractor will be responsible for providing the most up to date schedule to all attendees in PDF format, in accordance with Section 1.3.C Submittals of Technical Specifications 013210 Schedule. The frequency of this meeting will be at the discretion of the Project Management Team.
- C. Delays, Recovery Schedules, and Requests for Extension: If the project is experiencing delays, a meeting will be set up with the designer, engineer, contractor, the PMT, and DEN Project Controls to evaluate the package provided by the contractor. The designer / contractor will be responsible for providing the most up to date schedule to all attendees in PDF format in advance of any meetings, in accordance with Section 1.3.C Submittals of Technical Specifications 013210 Schedule, as well as any supplemental information that supports requests for re-sequencing, extensions etc. Additionally, the contractor will provide all required information from sections 3.10, 3.11, and 3.12 of Technical Specifications 013210 Schedule. If DEN determines that additional coordination is required, a periodic meeting will be set up at the discretion of the Project Management Team.

# PART 2 - PRODUCTS

# 2.01 SOFTWARE

- A. DEN Default Software:
  - 1. DEN shall use the latest release of Oracle Primavera P6 for all city scheduling needs.
- B. Designer / Contractor Software:
  - 1. Scheduling software used by the designer / contractor shall be compatible with the latest release of Oracle Primavera P6.
  - 2. The software and any support agreements shall be purchased at the designer's / contractor's expense from a vendor of the contractor's choosing.
  - 3. The City will not provide training or support services for designer / contractor purchased software.
- C. Oracle Primavera P6 Software Settings:
  - 1. The following settings are mandatory and required in all schedule submissions to the

| TECHNICAL SPECIFICATIONS           | DENVER INTERNATIONAL AIRPORT               |
|------------------------------------|--|
| DIVISION 01 – GENERAL REQUIREMENTS | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| SECTION 013210 – SCHEDULE          | CONTRACT NO. 202476290                     |

City. Submittals that do not meet these criteria will be rejected:

- a. All schedules will only contain project data at the Project Level and not at the Global or EPS level. Project data includes but is not limited to calendars, risks, OBS, activity codes and user defined fields.
- b. Time Period Administration Preferences shall remain the default "8.0 hour/day, 40 hour/week, 172 hour/month, 2000 hour/year". Set Calendar Work Hours/Day to 8.0-hour days.
- c. Set Schedule Option for defining Critical Activities to "Longest Path"
- d. Set up cost loading using single lump sum resource. The resource should be named "Lump Sum". The Price/Unit shall be \$1/hour, Default Units/Time shall be 8h/d", and settings "Auto Compute Actuals" and "Calculate Cost from Units" selected.
- e. Activity ID's shall not exceed 10 characters.
- f. Activity Names shall not exceed 30 characters, and will start with Verb/Action, followed by the work area, followed by additional information.

# PART 3 - EXECUTION

#### 3.01 PRELIMINARY PROJECT DESIGN / CONSTRUCTION SCHEDULE SUBMISSION

- A. General
  - 1. Within ten (10) days after the issuance of Notice to Proceed (NTP), submit the Preliminary Project Design / Construction Schedule:
    - a. If contract time is greater than 120 calendar days, submit the Schedule defining the planned operations detailed, at a minimum, for the first sixty (60) calendar days of the project for acceptance.
    - b. If contract time is shorter than 120 calendar days. submit the Schedule defining the planned operations detailed for the full contract term for acceptance.
    - c. It shall be early start and late finish constrained and logically tied as specified.
  - 2. The Preliminary Project Design / Construction Schedule shall form the basis for the Initial Design / Project Construction Schedule specified herein and shall include all the required plan and program preparations, submissions and approvals identified in the contract. For example, Design Work Plan, Design Submittal dates and review times, Quality Control Plan, Site-specific Safety Plan, and Environmental Protection Plan, etc.
  - 3. The DEN Project Management Team will respond within 14 days to the Preliminary Schedule submittal with either acceptance or direction to revise and resubmit.
  - In lieu of the Preliminary Project Design / Construction Schedule, the Designer / Contractor may, at the Designer's / Contractor's own discretion, submit the Initial Project Design / Construction Schedule at the Design Kick-Off or Preconstruction Meeting.
    - a. If the Initial Project Design / Construction Schedule is submitted in lieu of the Preliminary Project Design / Construction Schedule, the DEN Project Management Team will respond within thirty (30) days with acceptance or direction to revise and resubmission is required within ten (10) days.
  - 5. Acceptance of Preliminary Project Construction Schedule will not constitute approval of Schedule of Values.

# 3.02 INITIAL PROJECT DESIGN / CONSTRUCTION SCHEDULE SUBMISSION

- A. General
  - 1. Submit the Initial Project Design / Construction Schedule for acceptance within

**DIVISION 01 – GENERAL REQUIREMENTS** 

TECHNICAL SPECIFICATIONS

SECTION 013210 - SCHEDULE

fourteen (14) days after issuance of NTP.

- 2. The schedule shall demonstrate a reasonable and realistic sequence of activities which represent the Work through the entire contract performance period.
- 3. The DEN Project Manager will respond within 14 days with acceptance or direction to revise and resubmit.
- 4. The acceptance of the schedule is for general conformity to the Contract requirements and shall not constitute any relief of any Contract requirements.
- 5. Upon acceptance from the DEN Project Manager and DEN Project Controls, the Initial Project Design / Construction Schedule shall become the Baseline Schedule for the duration of the project.
- 6. The Baseline Project Design / Construction Schedule may be changed when one or more of the following events occur:
  - a. When a Change Order significantly affects the contract completion date or sequence of work.
  - b. When the Designer / Contractor elects to change the sequence or duration of work items affecting the critical path resulting in a major change that requires DEN approval.
  - c. When the City directs a change that affects a milestone dates specified in the Special Conditions or alters the length of a critical path.
- 7. Failure to include any work item required for performance of this Contract shall not excuse the Designer / Contractor from completing all Work within applicable completion dates, regardless of the City's acceptance of the schedule.
- 8. Failure of the designer / contractor to have an Initial Project Design / Construction Schedule accepted by DEN Project Manager will be considered cause for withholding progress payment.
- 9. This submittal shall include all package requirements included in section 1.3.C of this Technical Specifications 013210 Schedule document.

# 3.03 MONTHLY PROGRESS DESIGN / CONSTRUCTION SCHEDULE UPDATES

- A. General
  - 1. The Designer / Contractor shall submit a monthly progress schedule at the end of each month following the issuance of NTP, prior to approval of the invoice.
  - 2. At the end of each month, the Contractor and DEN Project Manager shall agree on the progress of the work and the Contractor shall update the Construction Schedule accordingly.
  - 3. This review does not constitute an acceptance of the Monthly Progress Schedule update and shall not be used for the purpose of modifying the accepted Baseline Project Design / Construction Schedule.
  - 4. Failure of the Designer / Contractor to have a Monthly Progress Design / Construction Schedule accepted by the DEN Project Manager will be considered cause for withholding progress payment per Article 306 - Working Hours and Schedules and Article 909 - Additional Withholding of Progress Payments of the General Contract Conditions, 2011 Edition.
  - 5. The Designer's / Contractor's monthly progress schedule shall include all package requirements included in section 1.3.C of this Technical Specifications 013210 Schedule document.
  - 6. The Contractor shall provide the DEN Project Manager an electronic copy prior to and a minimum of four (4) hard copies of the Contractor's Three (3) Week Look-Ahead Schedule for review at the DEN Project Manager's weekly progress meeting.

# 3.04 AS-BUILT CONSTRUCTION SCHEDULE:

- A. General
  - 1. After all Contract Work items are complete, the contractor shall submit an as-built Project Construction Schedule that reflects the actual sequence of construction activities, includes all change order scope of work changes and shows actual start and finish dates for all work items and milestones for acceptance by the DEN Project Manager.
  - 2. The basis for the As-built Construction schedule will be the approved Monthly Progress Schedules.

# 3.05 RECOVERY SCHEDULE

- A. General
  - 1. When a monthly progress schedule update indicates the Work is behind the current approved schedule, the Designer / Contractor submits a separate Recovery Schedule indicating the means by which the Designer / Contractor intends to regain compliance with the schedule.
  - No additional costs will be allowed if such expediting measures are necessary to meet the agreed completion date or dates except as provided elsewhere in the Contract Documents.
  - 3. If the early finish date for any work item or the substantial completion date does not fall within the Contract Duration, the sequence of work or duration shall be revised by the Designer / Contractor through concurrent operations, additional manpower, additional shifts or overtime, additional equipment, or alternative construction methods until the schedule produced indicates that all significant contract completion dates, occupancy dates and milestone dates will be met.
  - 4. Provide a narrative indicating changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.
  - 5. The narrative shall be submitted in accordance with Article 1105 Time Extensions in the General Contract Conditions, 2011 Edition.

# 3.06 REQUEST FOR TIME EXTENSION

- A. General:
  - 1. Provide a justification of delay to the DEN Project Manager, in accordance with the Contract provisions and clauses, for approval within 10 days of a delay occurring.
  - 2. Prepare a time impact analysis for each DEN Change Directive, Change Notice and Contractor's Change Request to justify time extensions.
  - 3. Added work by the City does not necessarily entitle a Designer / Contractor to a Time Extension, unless the Designer / Contractor can prove that this new added scope impacts the current critical path without manipulating any of the logic and relationships in the most recent and approved schedule.
  - 4. The City may reject any Time Extension Request that does not include a detailed and a clear time impact analysis that shows direct impact to the most current critical path along with a detailed productivity rate calculation to justify the requested time to execute such added work.
  - 5. If the Designer / Contractor is granted an extension of time for completion of any milestone or contract completion date under the provisions of the Contract, the determination of the total number of extended days will be based upon the current

analysis of the schedule and upon all data relevant to the extension. Such data shall be incorporated into the next monthly update of the schedule.

- 6. The Designer / Contractor acknowledges and agrees that delays in work items that, according to schedule analysis, do not affect any milestone dates or the Contract completion date shown on the CPM Network Schedule at the time of the delay will not be the basis for a Contract extension.
- B. Justification of Delay
  - 1. Provide a description of the event(s) that caused the delay and/or impact to the work. As part of the description, identify the schedule activities impacted.
  - 2. Show that the event that caused the delay/impact was the responsibility of the City.
  - 3. Provide a time impact analysis that demonstrates the effects of the delay or impact on the project completion date or interim completion dates.
  - 4. Multiple impacts shall be evaluated chronologically; each with its own justification of delay. With multiple impacts, consider concurrency of delay.
  - 5. A time extension and the schedule fragment become part of the project schedule and future schedule updates upon approval by DEN Project Controls.
- C. Time Impact Analysis (Prospective Analysis)
  - 1. Prepare a time impact analysis for City approval based on industry standard AACE 52R-06. Use a copy of the last approved schedule prior to the first day of the impact or delay for the time impact analysis.
  - 2. If DEN Project Controls determines the time frame between the last approved schedule and the first day of impact is too great, prepare an interim updated schedule to perform the time impact analysis.
  - 3. Unless approved by the DEN Project Controls, no other changes will be incorporated into the schedule being used to justify the time impact.
- D. Fragmentary Network (FragNet)
  - 1. Prepare a proposed fragment for time impact analysis. The proposed fragment shall sequence new activities into the project schedule to demonstrate the influence of the delay or impact to the project's contractual dates.
  - 2. Clearly show how the proposed fragment shall be tied into the project schedule, including the predecessors and successors to the fragment activities.
  - 3. Obtain City approval of the proposed fragment before incorporating it into the project schedule.
- E. Time Extension
  - 1. Time extensions will not be granted until after the City has approved the Justification of Delay, including the time impact analysis.
  - 2. No time extension will be granted unless the delay consumes the available Project Float and extends the projected finish date ("Substantial Completion" milestone) beyond the Contract Duration.
  - 3. The time extension will be in calendar days.
  - 4. Actual delays that the City determines are caused by the Designer's / Contractor's own actions and result in a calculated schedule delay will not be a cause for an extension to the performance period, completion date, or interim milestone date.
- F. Impact to Early Completion Schedule

1. No extended overhead will be paid for delay prior to the original Contract Substantial Completion date.

# 3.07 FAILURE TO ACHIEVE PROGRESS

- A. General:
  - 1. If the progress falls behind the approved baseline project schedule for reasons other than those that are excusable within the terms of the Contract, the City may require submittal of a written recovery plan for approval.
  - 2. The plan shall detail how progress shall be recovered, including which activities will be accelerated by adding additional crews, longer work hours, extra work days, etc.
- B. Artificially Improving Progress
  - 1. Artificially improving progress by means such as, but not limited to, revising the schedule logic, modifying or adding constraints, shortening activity durations, or changing calendars in the project schedule is prohibited.
  - 2. Indicate assumptions made and the basis for logic, constraint, duration, and calendar changes used in the creation of the recovery plan.
  - 3. Additional resources, manpower, and daily and weekly work hour changes proposed shall be evident at the work site and documented in the daily report along with the Schedule Narrative Report.
- C. Failure to Perform
  - 1. Failure to perform work and maintain progress in accordance with the supplemental recovery plan may result in an interim and final unsatisfactory performance rating and/or may result in Non-Conformance Report for corrective action directed by DEN Project Controls pursuant to other Contract provisions.

#### PART 4 - MEASUREMENT

#### 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

# PART 5 - PAYMENT

#### 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

# END OF SECTION 013210

# SECTION 013223.11

# CONSTRUCTION LAYOUT AND AS-BUILT SURVEYS

## PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. This Section covers Denver International Airport (DEN) procedures and accuracy requirements for survey services for construction layout, and as-built.
- B. Before commencing any field surveys on DEN property, the Contractor must coordinate a pre-survey preparation activities meeting. This meeting is to be arranged through the DEN Project Manager's Office with the attendance of the Contractor and the DEN Survey Section. The Contractor is responsible for obtaining DEN related survey guidance, Access to DEN survey network, Primary Control, projection parameters, and training materials from the DEN Survey at the pre-survey meeting and/or prior to beginning any survey work.
  - 1. Project Checklist, provided as part of this Specification, must be reviewed at the presurvey preparation activities meeting. (Refer to Article 1.11.)
- C. The Contractor will be provided the BIM design file for the project at the pre-survey meeting. The Contractor will be expected to update and augment the information contained within the BIM design file throughout construction with as-built information. This will include updating x,y,and z information and updating or completing object data tables for the data. The BIM design file should not be assumed to include all information that is required for the BIM Asbuilt file submittal, however act as a starting point. Refer to FAA AC 150/5300-18B for requirements of the BIM As-Built Submittal.
- D. Failure to meet weekly deliverables and continued progress on As-Builts in accordance with this specification may result in withholding of project payments in accordance with Section 909 of the General Contract Conditions.

# 1.03 REFERENCE DOCUMENTS:

- A. Section 013223.15 "Survey Information".
- B. Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples".
- C. Latest version of Federal Aviation Administration Advisory Circular 150/5300
- D. Latest Version of DEN BIM DSM (Design Standards Manual) (Found at the weblink below) https://business.flydenver.com/bizops/documents/denBIM\_DSM.pdf
- E. Latest Version of Colorado Department of Transportation (CDOT) Survey Manual.
- F. Latest Version of Minimum Standard Detail Requirements for ALTA/ NSPS Land Title Survey

| TECHNICAL SPECIFICATIONS                                   | DENVER INTERNATIONAL AIRPORT               |
|--|--|
| DIVISION 01 – GENERAL REQUIREMENTS                         | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| SECTION 013223.11 – CONSTRUCTION LAYOUT AND AS-BUILT SURVE | EYS CONTRACT NO. 202476290                 |
|  |  |

## 1.04 SUBMITTALS

- A. Refer to Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples" for the submittal process.
- B. Survey Statement of Work (SSOW):
  - 1. The Contractor must develop a complete SSOW and submit it to the DEN Project Manager. The SSOW is the Contractor's written description of the Contractor's methodology for surveying services that must be provided as part of the Project, including specific features that must be surveyed, action items, timelines necessary airport resources and general information.
  - 2. SSOW must be submitted by the Contractor prior to commencement of any survey or layout work on the site.
  - 3. The SSOW will be accepted by the DEN Project Manager.
  - 4. Under no circumstances must the Contractor begin work until the SSOW has been accepted.
- C. Survey and Quality Control Plan (SQCP):
  - 1. The Contractor must develop a complete SQCP and submit it to the DEN Project Manager. The SQCP is the Contractor's written description detailing the Contractor's methodologies for data collection, data safeguarding and quality assurance. Provide insight on how the Contractor must completely check all data to ensure it is complete, reliable, and accurate. Identify data safeguards used to protect the sensitive and safety critical data. Utilize a checklist based quality control process with definable and repeatable standards for each element ensuring consistency of work between different personnel within an organization. Submit the plan in a non-editable PDF.
  - 2. SQCP must be submitted by the Contractor prior to commencement of any survey or layout work on the site.
  - 3. The SQCP will be accepted by the DEN Project Manager.
  - 4. Under no circumstances must the Contractor begin work until the SQCP has been accepted.
- D. Weekly Project Status Report:
  - 1. Contractor must submit a project status report in compliance with FAA AC 150/5300-18B to the DEN Project Manager every Monday by 2:00 P.M. Mountain Time, from the date of the task order until the date of Substantial Completion.
  - 2. The project status report must also include in-progress BIM As-Builts reflecting all changes to the construction documents by construction that week. All documentation will be reviewed weekly by DEN PM, DEN BIM Group, as well as by DOR for completeness. AutoCAD Files complying with DEN BIM Standards and AC 150/5300-18B must be submitted with each weekly status report. The Contractor will be required to attend a weekly As-Built Meeting to review the progress of the as-builts and completeness of the submitted data.
  - 3. The Weekly Project Status Report must use format from AC 150/5300-18B
- E. Final Project Survey Report:
  - 1. The Final Project Survey Report, must use format from AC 150/5300-18B
  - 2. Final Project Survey Report must be stamped and wet signed by a current Colorado Registered Professional Land Surveyor.
- F. SURVEY DELIVERABLES:

| DIVISIC | ON 01 –  | GENE         | CATIONS DENVER INTERNATIONAL AIRPORT<br>RAL REQUIREMENTS RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2<br>- CONSTRUCTION LAYOUT AND AS-BUILT SURVEYS CONTRACT NO. 202476290  |
|---------|--|--------------|---|
|         | 1. Contractor must submit all of the following deliverables. |              |   |
|         |  | 2.           | All raw files: GPS and Levels that is compatible with Trimble Business Center.  |
|         |  | 3.           | If combining x, y from GPS and z from Levels, provide field notes and data that shows where this data came from to verify values. The GPS point numbers must match to the Level descriptions.   |
|         |  | 4.           | As-built or as-constructed survey submittals must need to be in both Portable<br>Document Format (PDF) and in AutoCAD Civil 3D. Refer to current and criteria<br>document for direction on PDF production.  |
|         |  | 5.           | All copies of original pages of field notes or electronic field notes must be in (PDF).   |
|         |  | 6.           | Scanned copies of all original field notebooks used for this Project must be submitted at the end of Contract, as well as produce weekly for progress validation.   |
|         |  | 7.           | All as-built points files must be in either CSV or TXT format.  |
|         |  | 8.           | <ul> <li>All CAD drawings must be in current approved Autodesk Civil 3D format.</li> <li>a. CAD layers are specified in DEN BIM Design Standards Manual and FAA AC<br/>150/5300-18B.</li> </ul>   |
|         |  |              | b. DEN will provide the Autodesk Civil 3D drawing template.   |
|         |  | 9.           | The as-built survey must follow the most recent Minimum Standard Detail<br>Requirements for ALTA/ NSPS Land Title Survey for all sections, as far as they are<br>applicable to the scope of work for the project and site in question.  |
|         |  | 10.          | Documentation in accordance with "Table A, Optional Survey Responsibilities and Specifications" (Refer to Article 1.11.) is filled out with the required content to be submitted.   |
|         |  | 11.          | Hard copy of all documentation stamped and wet signature by licensed PLS responsible for the work.  |
| 1.05    | QUA  | ALITY        | REQUIREMENTS  |
|         | A.   |              | tractor – Company contracted to perform survey work under the direct supervision of a<br>prado Registered Professional Land Surveyor with current FAA "Idle Certification" ",<br>el 3.  |
|         | В.   |              | surface Utilities Engineering (SUE): Refer to Section 011810 "Utilities Interface" for<br>mation related to underground utilities.  |
|         | C.   |              | veying accuracies and tolerances in control surveys, construction layouts: See CDOT<br>vey Manual for acceptable tolerances.  |
| 1.06    | DEN  | I SITE       | SURVEY REQUIREMENTS   |
|         | A.   | loca<br>serv | te survey, construction survey, or construction as-built survey providing horizontal<br>tion and level information of surface features, and both above and below ground<br>rices and utilities must be completed. This must also be annotated with information<br>ere applicable) relating to the size, direction of and material type. |
|         |  | 1.           | When collecting utilities, Contractor must be responsible to have all exposed and   |

- 1. When collecting utilities, Contractor must be responsible to have all exposed and installed utilities surveyed prior to being covered. If Contractor fails to survey utilities, DEN Project Manager can have the Contractor uncover the utilities so they can be surveyed., at no additional cost to the owner.
- 2. Any temporary works that remain at the completion of the project must also be surveyed.
- 3. FAA and DEN Survey codes must be provided by The DEN Project Manager via DEN

Survey or Designee and must be used throughout the project by Contractor for as surveyed features.

4. The most current DEN Civil 3D template must be provided by The DEN Project Manager via the DEN BIM team. All DEN BIM requirements must be met.

## 1.07 DEN ALIGNMENT MONUMENTATION

- A. Alignment monuments must be set at their corresponding coordinates as shown on the monumentation sheet of the Alignment Plans. When monumenting the Alignment, the Contractor must verify that the latest set of Alignment plans are being used. After the Alignment monument locations are staked in the field, any necessary utility locates should be called for prior to setting the monument.
- B. All Alignment monuments set must be established within the Minimum Horizontal Accuracy Tolerance as required in this chapter for a CDOT Class B Secondary survey.
- C. Alignment monuments must be set at the locations as shown on the Alignment Plans, which include the following locations:
  - 1. All angle points or changes of directions.
  - 2. At the beginning and ending of curves.
  - 3. At the points of change of direction or changes of radius of any boundary defined by circular arcs.
  - 4. Not to exceed 1,400 feet apart along any straight boundary line.
  - 5. Any other points as approved by the Survey Coordinator due to field conditions encountered during setting of the Alignment monumentation.
- D. Alignment monuments must have a witness post installed within 2 ft and facing the monument, or as accepted by DEN Survey. For setting easement monuments, the witness post requirement may be waived by DEN Survey.
- E. Use Orange Carsonite witness post:
- F. All Alignment monument caps set in the field must be stamped with the following:
  - 1. DEN Project Code number
  - 2. Point number as shown on the Right of Way Plans
  - 3. Colorado PLS number setting the monument
- G. All Alignment monuments set in the field must be shown on the Final set of Alignment Plans in accordance with the CDOT Right of Way Manual, Chapter 2 – ROW Plans. The Colorado PLS who is in responsible charge for setting the Alignment monuments must stamp her/his number on the monument cap, and must certify on the Alignment Plans to setting of the Alignment monuments in the field.
- H. The Contractor in responsible charge of the Alignment Plans and the Contractor in responsible charge of setting the Alignment monuments in the field might not be the same individual. Therefore, care must be taken to ensure any monuments set in the field at locations different than that shown on the Alignment Plans are communicated to the Alignment plans section, and the final Alignment Plans are corrected to show these new monument locations and descriptions prior to submitting the plans to DEN Survey.
- I. Alignment monuments, witness posts, and monument box materials must be furnished by Contractor.

## 1.08 FEATURES TO BE RECORDED

- A. Surface and Above Ground Features: The survey of surface features must include, but is not limited to:
  - 1. Structures and Surfaces paths, driveways, retaining walls, slabs/paved areas, significant structural footings (plinths etc.), poles/ floodlighting.
  - 2. Drainage Structures headwalls, open drains, grated drains, culverts.
  - 3. Roads edge of pavement, curbs, shoulders, line-marking, bridges, road furniture (NOTE the top back and bottom face of curb, and all water channels must be surveyed and recorded).
  - 4. Buildings footprints, awnings, overhangs, columns, external fixtures (stairs, ramps, plant, etc.).
  - 5. Fences and Gates AOA, security, general fencing, gates and handrails.
  - 6. Aircraft Pavements and Movement Area Structures finished surfaces, pavement markings, airfield markers/signage/ navigational aids, PLB and other aeronautical infrastructure;
  - 7. Topographical Features general topography, embankments, earthworks platforms and surcharge.
  - 8. Vegetation gardens, significant trees (>0.2' trunk diameter, decorative shrubs), vegetation stands, riparian zones.
  - 9. Signage road, airfield, parking, advertising, other general signage.
  - 10. Survey Marks survey control points used, any settlement plates/ monitoring points placed during works.
  - 11. Airfield panel corner elevations must be derived from digital levels.
- B. Services and Utilities Prior to any backfilling or covering, information on all underground services must be obtained and documented according to DEN's modified ASCE-SUE Standards, including but not limited to:
  - 1. Electrical (LV and HV) top of conduit every fifty feet including horizontal and vertical bends, cables and conduits, pits/ manholes and chambers, HV cable joints, earth points and earth mats, substations/ transformers and surrounding pad, pillars, cabinets and switchboards, top of conduits.
  - Fuel Control top of conduit every fifty feet including horizontal and vertical bends, cables and conduits, pits/ manholes and chambers, cabinets, emergency shut-off points.
  - 3. Communications top of conduit every fifty feet including horizontal and vertical bends, fiber optic, microducts, comms cables and conduits, pits/ manholes and chambers, top of conduit casing/housing.
  - 4. Drainage top of pipes at fifty-foot intervals and at every vertical and horizontal bend, inspection openings, pits/ manholes and chambers, roof water drainage (downpipes, small pits/ grates).
  - 5. Fuel top of pipes every fifty feet including horizontal and vertical bends, all weld points with weld numbers documented in the point description and in the field notes, pits/ manholes and chambers, valves, hydrants, earth points, test points.
  - 6. Sewer (note whether gravity or force main) top of pipes every fifty feet including horizontal and vertical bends, pipes, pipe inverts, pipe outflows, inspection openings, pits/ manholes and chambers, vent pipes, pump stations and associated components.
  - 7. Water (differentiate between potable and recycled) top of pipes every fifty feet

including horizontal and vertical bends, pits/ manholes and chambers, valves (and type), meters, taps, hydrants, tanks, pumps, irrigation control.

- 8. Compressed Air top of pipes every fifty feet including horizontal and vertical bends, hoses and other fixtures.
- 9. Natural Gas / Petroleum– top of pipes every fifty feet including horizontal and vertical bends, valves, tanks, meters.
- C. Sufficient points must be recorded to ensure that the extremities of all surface features, structures and footings are clearly defined and all bends, intersections, and changes of gradient are accurately recorded. The distance between points of location should generally be about 50 feet and must not exceed 100 feet. All curves must be accurately defined using a minimum of three points (two tangent points and one midpoint).
- D. Where actual positions of linear features deviate from a straight line, sufficient additional points of location must be provided to define the deviation horizontal and/or vertical change in directions.
- E. For systems, utilities, and features not identified herein, refer to PM for direction on capture requirements

# 1.09 SURVEY METHODOLOGY – SERVICES AND UNDERGROUND FEATURES

- A. Sufficient points must be recorded to ensure that the extremities of all pits, manholes, and any other features related to the service are clearly defined and all bends, joints, intersections, changes of gradient, and fittings on or along the service, pipe or conduit are accurately recorded. All curves must be accurately defined using a minimum of three points (two tangent points and one midpoint). Where actual positions of linear features deviate from a straight line, sufficient additional points of location must be provided to define the deviation horizontal and/or vertical change of directions.
- B. The maximum distance between points of location along services must not exceed 50 feet. Horizontal and vertical locations must be surveyed on the top of the utility and must be labeled as "top". Inverts measurements must also be taken in manholes and must be labeled.
- C. The Contractor must record and annotate all services and utilities with information relating to the size, direction of and material type. The Contractor must record and clearly differentiate between the communication service providers and DEN and/or FAA communications infrastructure.
- D. The Contractor must record the size and orientation of all grates, pits and manholes. Grates and pits must be recorded using a minimum of three corner or edge points. Pit/ manhole chambers only need to be located and where the extents of the chamber extend past the extremities of the pit at surface level. In all instances, any thrust blocks or concrete cover/ protection over services must be located, showing depth.

# 1.10 EXISTING FEATURES AND SERVICES

- A. Existing Services: where the existence of services and other features on the site of the Work and the Work exposes or interacts with these existing services, the Contractor must locate and record the details of all such features and services.
- B. Tunnel Boring: The Contractor must provide records (logs, profiles etc.) relating to all tunnel boring undertaken as part of the Project. Where appropriate this information must be incorporated into the as-built site survey. Where the contract drawings do not show the existence of certain utilities and features and the Work exposes or interacts with the utilities

and features, these must be located and recorded by the Contractor.

C. Services Alteration/ Abandonment / Demolition: Where existing infrastructure, building services and/or utilities are demolished or services realigned or abandoned this information must be reflected within the as-built site survey. A distinction must be made between services (or part services) which have been abandoned (but left in the ground) and those that have been physically removed.

#### 1.11 SURVEY CHECK LIST

|     | Yes | No | N/A | Project Kickoff Phase   |  |
|-----|-----|----|-----|---|--|
| 1   |     |    |     | Did Contractor meet with DEN PM obtain the data standards and general requirements for data gathering?  |  |
| 2   |     |    |     | Did Contractor meet with Airport Survey Office to obtain airport<br>survey control points, projection parameters, and airport survey<br>training materials?     |  |
| 3   |     |    |     | Did Contractor provide Survey Statement of Work to DEN PM?  |  |
| 4   |     |    |     | Did Contractor provide Geodetic Verification Survey to DEN PM?  |  |
| 5   |     |    |     | Did Contractor provide Survey Control Plan to DEN PM?   |  |
| 6   |     |    |     | Did Contractor provide Imagery Plan to DEN PM? (Only required if collecting aerial imagery)?  |  |
| 7   |     |    |     | Did the FAA accept survey plans?  |  |
|     | Yes | No | N/A | Construction Phase (As-Builts)  |  |
| 8   |     |    |     | Did Contractor perform field survey of project site to collect accurate as-built data?  |  |
| 9   |     |    |     | Did the Contractor provide DEN PM with subsurface utility data?   |  |
| 10  |     |    |     | Each week, did the Contractor provide DEN PM with Project Status Reports?   |  |
| 11  |     |    |     | Did the Contractor provide DEN PM with 25% as-built data in both CADD and GIS formats including all attribute information and metadata?                         |  |
| 12a |     |    |     | Did DEN PM report 25% QA findings via email to Contractor?  |  |
| 12b |     |    |     | If required, did the Contractor provide DEN PM with 50% as-built data in both CADD and GIS formats including all attribute information and metadata?            |  |
| 12c |     |    |     | If applicable, did DEN PM report 50% QA findings via email to Contractor?   |  |
| 12d |     |    |     | If required, did the Contractor provide the DEN PM with 75% as-<br>built data in both CADD and GIS formats including all attribute<br>information and metadata? |  |
| 12e |     |    |     | If applicable, did DEN PM report 75% QA findings via email to Contractor?   |  |
| 13  |     |    |     | Did the Contractor provide DEN PM with 100% as-built data in both CADD and GIS formats including all attribute information and metadata?                        |  |
| 14  |     |    |     | Did Contractor provide DEN PM with a completed Final Survey Report?   |  |
| 15  |     |    |     | Did DEN PM report QA findings via email to Contractor?  |  |

#### PART 2 - PRODUCTS

#### (NOT USED)

# PART 3 - EXECUTION

#### 3.01 CONSTRUCTION LINES AND GRADES

- A. The Contractor must make surveys and layouts as necessary to delineate the Work. The Contractor must make the surveys for the proper performance of the Work. As a part of such surveys, the Contractor must furnish, establish, and maintain in good order survey control points that may be required for the completion of the Work subject to the approval of the DEN Project Manager as to their location, sufficiency and adequacy. However, such approval by the DEN Project Manager must not relieve the Contractor of responsibility for the accuracy of the Contractor's survey work.
- B. The DEN Project Manager must have the right to check surveys and layouts made by the Contractor prior to approving any of the Work. The Contractor must give advance notice of not less than forty-eight (48) hours to the DEN Project Manager to enable such checking prior to placing any work. The Contractor must furnish assistance as may be required for checking purposes when so requested by the DEN Project Manager.
- C. The Contractor must furnish skilled labor, instrument platforms, ladders and such other temporary structures as may be necessary for making and maintaining points and lines in connection with the surveys required.
- D. The DEN Project Manager may draw the Contractor's attention to errors or omissions in lines or grades, but the failure to point out such errors or omissions must not give the Contractor any right or claim nor must in any way relieve the Contractor of obligations according to the terms of this Contract.
- E. The Contractor's instruments and other survey equipment must have current certification from manufacturer's representative Surveys must be performed under the direct supervision of a current Colorado Registered Licensed Land Contractor.
- F. Field Notes:
  - 1. The Contractor must record surveys in field notebooks or as electronic field notes, whichever is more appropriate to the type of survey work.
  - 2. If the DEN Project Manager finds errors in the field notes DEN must have the Contractor correct and resubmit the notes. This review does not relieve the Contractor from the responsibility of maintaining accurate survey data. Whichever method of note-taking the Contractor starts with, the Contractor must use the same method throughout the Contract duration.
- G. The DEN Project Manager may at any time use line and grade points and markers established by the Contractor. The Contractor's surveys are a part of the Work and may be checked by the DEN Project Manager or the DEN Project Manager's representatives at any time.

#### PART 4 - MEASUREMENT

#### 4.01 METHOD OF MEASUREMENT

A. Measurement for Construction As-built Survey (BIM) shall be per lump sum. This item shall include as-built survey of all construction items associated with the contract and production of the BIM As-Built survey file. All in progress as-built survey will be documented and submitted weekly, and at the 25%, 50%, 75% and 100% levels, to the DEN Project Manager for approval. This item includes any revisions and resubmittals necessary to meet the DEN Building Information Modeling (BIM) Design Standards Manual (DSM) and Construction Plan Manual, Technical Specifications Division 1.

# PART 5 - PAYMENT

#### 5.01 METHOD OF PAYMENT

Payment for Construction As-built Survey (BIM) will be made at the contract unit price per lump sum. This price will be full compensation for the Construction As-built Survey (BIM) and all associated items necessary for approval as provided in the DEN Building Information Modeling (BIM) Design Standards Manual (DSM) and Construction Plan Manual, Technical Specifications Division 1.

Payment shall be made under:

013223.11a Construction As-Built Survey (BIM) - Per Lump Sum

## END OF SECTION 013223.11

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TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 013223.15 – SURVEY INFORMATION

# SECTION 013223.15

#### SURVEY INFORMATION

#### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. This Section covers Denver International Airport (DEN) procedures and accuracy requirements for survey control.
- B. Before commencing any field surveys on DEN property, the Contractor must coordinate a pre-survey preparation activities meeting. This meeting is to be arranged through the DEN Project Manager's Office with the attendance of the Contractor and the DEN Survey Section. The Contractor is responsible for obtaining DEN related survey guidance, Access to DEN survey network, Primary Control, projection parameters, and training materials from the DEN Survey at the pre-survey meeting and/or prior to beginning any survey work.
- C. Survey Project Checklist, provided after the end of this Section, will be reviewed at the presurvey preparation activities meeting.

#### 1.03 REFERENCE DOCUMENTS:

- A. Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples".
- B. Latest version of Federal Aviation Administration Advisory Circular 150/5300
- C. Latest Version of DEN BIM DSM (Design Standards Manual)
- D. Latest Version of Colorado Department of Transportation (CDOT) Survey Manual.
- E. Latest Version of Minimum Standard Detail Requirements for ALTA/ NSPS Land Title Survey

#### 1.04 SUBMITTALS

- A. Refer to Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples" for the submittal process.
- B. Survey Statement of Work (SSOW):
  - 1. The Contractor must develop a complete SSOW in accordance with Specification Section 013223.11, "Construction Layout and As-Built Surveys".
- C. Survey and Quality Control Plan (SQCP):
  - 1. The Contractor must develop a complete SQCP in accordance with Specification Section 013223.11, "Construction Layout and As- Built Surveys".

#### 1.05 QUALITY REQUIREMENTS

| TECHNICAL SPECIFICATIONS               |
|--|
| DIVISION 01 – GENERAL REQUIREMENTS     |
| SECTION 013223.15 – SURVEY INFORMATION |

A. Equipment Calibration:

| 1. | Equipment must be regularly checked, and calibrated for accuracy at the beginning of   |
|----|--|
|    | any survey project to ensure that the equipment is operating appropriately. Errors due |
|    | to poorly maintained or malfunctioning equipment will not be accepted. If any          |
|    | equipment errors are found to exist they must be reported to the DEN Survey prior to   |
|    | the start of any surveying. These errors must be verified and eliminated prior to      |
|    | performing any survey work. For projects lasting longer than six (6) months, the       |
|    | checking, and calibration of equipment must be repeated. Furthermore,                  |
|    | documentation must verify such equipment has met acceptable tolerances.                |

- 2. The Contractor must submit to the DEN Project Manager written proof that survey equipment has been checked and calibrated before commencing any survey work. If repairs are made, documentation of such repairs from an authorized equipment vendor must be submitted.
- B. See CDOT Survey Manual for acceptable procedures for calibrating equipment electronic survey instruments adjustments, calibration, or repairs:
  - 1. All electronic survey instruments must be repaired, adjusted, or calibrated only by an authorized equipment vendor or manufacturers service department.
  - A calibration check on all types of electronic survey instrumentation is essential to obtain and maintain the tolerances required for any DEN project. At the beginning of any DEN project, all survey equipment utilized to perform the survey must be calibrated by the surveyor in charge of the Project.
  - 3. See CDOT Survey Manual for acceptable procedures for calibrating equipment.
- C. Baseline Calibration Requirements:
  - 1. See CDOT Survey Manual for the procedures to check the survey equipment and the method of reporting the findings to the DEN Project Manager and the DEN Survey Section.
  - The Contractor must submit to the DEN Project Manager written proof that survey equipment has been checked and calibrated before commencing any survey work. If repairs are made, documentation of such repairs from an authorized equipment vendor must be submitted.

# 1.06 SURVEY CONTROL

- A. DEN utilizes its own local coordinate system that is tied to the National Spatial Reference System (NSRS). The DEN Survey Section will provide the data required to use this coordinate system during the mandatory pre-survey preparation activities meeting. The DEN Survey Section will also provide coordinates for all Primary Control Points based upon the location of the Project.
- B. The coordinates of the Primary Airport Control Station (PACS) and Secondary Airport Control Station (SACS) were correct at the time of installation (or subsequent date listed on the plan) but may be subject to the effects of subsequent subsidence and/ or disturbance. Marks with any noticeable signs of disturbance, damage, or location out of tolerance must be reported so that they can be repaired and/ or noted on the control plan. In addition, any marks that have been or will be destroyed either before or during Works must be noted and mentioned in the Survey Statement of Work and the Survey and Quality Control Plan. If removed or destroyed, the Contractor will create a plan and must replace the PACS or SACS.
- C. DEN is based on the North American Vertical Datum of 1988 (NAVD 1988). Vertical Control and Bench Marks must be tied into this datum. DEN has existing established National Geodetic Survey (NGS) vertical stations around its property and these points must be used

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 013223.15 – SURVEY INFORMATION

in all DEN projects. Project control points must be established by performing measurements with a digital level from at least two NGS vertical stations that are given by the DEN Survey Section. The benchmarks used to establish ties to the datum must be shown in the Contractor's notes and on the CSP.

- D. The Contractor will be provided survey control from the DEN Survey Section. If the nearest NGS Vertical Station is a considerable distance from the site, the Contractor may establish a Temporary Survey Control Point (TSCP) near the site. Appropriate survey procedures must be used to establish any additional TSCP. A minimum of 3 TSM must be established for the project. Each must be visible and tied to at least 2 separate TSCP or PACS and/or SACS. It is the Contractor's responsibility to verify the stability of the mark over the life of the project. Where unacceptable discrepancies in control marks due to land settlement, disturbance or from other factors are apparent, the Contractor must refer the matter to DEN Project Manager for resolution prior to the continuation of Work.
- E. Horizontal Control is based on a local coordinate system. The Contractor must establish reliable horizontal control that will last the duration of the Project. Where unacceptable discrepancies in control marks due to land settlement, disturbance or from other factors are apparent, the Contractor must refer the matter to DEN Project Manager for resolution prior to the commencement of Work. The horizontal control establishing ties to the datum must be shown in the Contractor's notes and on the CSP.
- F. Geodetic Verification Survey Instructions and Procedures:
  - The geodetic verification survey is created to insure the stable position of the DEN Primary control points that are used to reference the TSCP to the NSRS. Acceptable monuments will be identified by the DEN Survey Section and will be limited to monuments of the NSRS with permanent identifiers (PIDS) and published positions and elevations. Temporary design/construction control points established for such project will be referenced by direct measurement to at least two (2) separate NGS control stations.
    - a. The Contractor must recover each identified monument and determine its condition, stability, and suitability for the intended use. A location sketch and visibility diagram will be prepared for each station. A minimum of three (3) digital photographs, one of each type described in AC 150/5300-18B, Section 1.5.2.1, will be captured, captioned, and properly named. A recovery note will be filed with NGS if no current recovery is shown in the NSRS database.
    - b. After recovering the identified NSRS NGS control stations that are located on DEN property, the procedure to verify the control points are as follows:
      - 1) DEN has created its own Virtual Reference System (VRS) Network that will be used on all survey projects. This network will be known as DENVRS.
        - This system is comprised of hardware and software designed to facilitate real-time GPS/GNSS positioning based on a set of reference stations.
        - b) DEN has created a control network that incorporates fifteen (15) Primary Control Points tied together with the reference stations for the DENVRS,
        - c) This network, in turn, is lied to the National Spatial Reference System (NSRS).
        - d) DEN will be monitoring the stations on an annual basis and the primary control points on an annual basis and the primary control points on a quarterly basis.
      - The Consultant is required to validate the DENVRS by observing at least two (2) Primary control points using a Fast Static method
        - a) Fast Static surveys allow for systematic errors to be resolved when high accuracy positions are required by collecting simultaneous data between stationary receivers for a shorter period of time than that of Static surveys. DEN will require an observation time of (15) minutes on

| IVISION 01 - 0 | PECIFICATIONS<br>GENERAL REQUIE<br>23.15 – SURVEY II |   | DENVER INTERNATIONAL AIRPORT<br>RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2<br>CONTRACT NO. 202476290  |
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|                |  |   | ol points. Each baseline between adjacent intervisible<br>ust be observed at least twice.   |
|                | 3)   | The results must be<br>allowing at least seve<br>reject the temporary                           | eviewed and approved by the DEN Survey Office,<br>enty-two (72) hours to review and either approve or<br>control. All temporary control points MUST BE<br>design survey work can commence.  |
|                | 4)   | Obtain elevation che<br>The distances must<br>difference in ellipsoid<br>cm, and the difference | cks either from GPS observations or from digital levels.<br>Igree within, plus or minus, three $(\pm 3)$ cm; the<br>al height must agree within, plus or minus, four $(\pm 4)$<br>e in orthometric height must agree within, plus or<br>f the tolerances are not met the data must be |
|                | 5)   | report to the DEN Pr  | <ul> <li>the comparisons as part of the observational data in a<br/>oject Manager to be reviewed and approved by the<br/>prior to the start of construction and include this<br/>e final report.</li> </ul>   |
|                | 6)   |   | pserve Report for the NGS horizontal control stations to ps://www.ngs.noaa.gov/GPSonBM/Report.shtml for the   |
| G.             | Limitations an                                       | d Additional Informatio   | n for NGS Control Stations and NGS Benchmarks:  |
|                | than tho<br>Survey S                                 | se shown on the Cont  | and projection parameters for construction layout othe<br>act Drawings or furnished by or approved by the DEN<br>ROHIBITED. Use of other monuments is solely at the   |
|                | and any<br>to use th<br>submitte                     | assistance in implemented assistance in implemented as a correct methodology                    | rovide the Contractor with the projection parameters<br>nting the coordinate system. It is up to the Contractor<br>in performing any survey task which must be<br>lanager and reviewed during the pre-survey  |
|                |  |   | need all pertinent data from the Contractor to check nplemented the coordinate system correctly.  |
| H.             | Modifications  | to AC 150/5300-18B  | Section 2.6.10.1.1, Verification of Survey Marks:   |

- 1. DEN requires Contractor to verify the unmoved position and elevation of both the PACS and SACS for any airside projects and any two (2) DEN approved NGS control stations for any landside project.
- 2. The Contractor must follow the same verification procedure as stated in Section G above.
- I. Reporting Damage or Errors of NGS Control Stations:
  - 1. Report damaged or destroyed airport control points, bench marks, and section corner monuments promptly to the DEN Project Manager.
    - a. If section corner monuments are damaged or destroyed during construction activities, such points must be re-established pursuant to Laws of the State of Colorado Regulating the Practice of Land Surveying by a current Registered Professional Land Contractor in the State of Colorado.
    - b. If NGS control stations or NGS bench marks are damaged, moved, altered, or destroyed by the Contractor, DEN's cost of reestablishing such points must be borne by the Contractor.
    - c. DEN will not be responsible for any increased costs or delays to the Contractor relating to reference points, airport control points, or bench marks which are damaged, moved, altered, or destroyed by the Contractor or its, suppliers, agents or employees or other Contractors working on the site.

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 013223.15 – SURVEY INFORMATION

- Report alleged errors in NGS control stations or NGS bench marks promptly to the DEN Project Manager.
  - a. Discontinue use of NGS control stations or NGS bench marks alleged to be in error until the accuracy of points can be verified or as directed.
  - b. Claims for extra compensation for alteration or reconstruction allegedly due to errors in NGS control stations or NGS benchmarks will not be allowed unless original NGS control stations and NGS bench marks still exist or substantiating evidence proving error is furnished by the Contractor, and unless the Contractor has reported such errors to the DEN Project Manager as specified herein.

# 1.07 TEMPORARY SURVEY CONTROL

- A. The Contractor MUST set a minimum of either 'chiseled X' in concrete; a drill hole with lead and tack in concrete; a PK nail with shiner in asphalt or concrete or a 5/8" rebar with plastic cap in natural ground. An 'Inked X' set as a control point is UNACCEPTABLE.
- B. When a Contractor establishes TSCP for DEN survey work the Contractor MUST follow FAA guidelines. All TSCP must be referenced to the National Spatial Reference System (NSRS) using the NGS control stations provided by the DEN Survey Section. Temporary control may be necessary based on project site location. Below are the acceptable means to establish temporary geodetic control for DEN design or construction projects:
  - Temporary control must be established under close cooperation with the DEN Survey Section following the procedures outlined in AC150/5300-16 "General Guidance and Specifications for Aeronautical Surveys: Establishment of Geodetic Control and Submission to National Geodetic Survey" only in the following cases:
    - a. Large airport construction projects that significantly changes the airport geometry and would trigger the need to acquire new Digital Stereo Imagery following AC 150/5300-17 "General Guidance and Specification for Aeronautical Survey Airport Imagery Acquisition and Submission to the National Geodetic Survey". Examples include a new runway and taxiway complex, significant modification of existing runway or taxiway system, development of new outboard deice pad complex or establishment of new mid airfield concourse and terminal complex. The size and complexity of the Project will dictate the need to acquire new digital stereo imagery for significant construction.
    - b. Construction that establishes a new ILS CAT II/III Operations.
    - c. New Instrument Development Procedure.
    - d. New Airport Layout Plan Survey Update.
    - e. New Airport Obstruction Chart Update.
    - f. New Airport Mapping Database.
  - 2. On DEN projects, the Contractor, may use TSCPs on their project site. These TSCP must be referenced to the nearest two (2) DEN primary control points and MUST BE referenced vertically to two (2) different NGS benchmarks. Also, all Contractors MUST obtain permission to establish TSCPs on DEN property by means of communicating with the DEN Survey Section.
  - 3. In addition, all vertical control MUST BE established only using a digital level unless otherwise authorized by the DEN Survey Section.
  - 4. Minimum Construction Horizontal and Vertical Accuracy Tolerance:
    - a. Adjustments:
      - 1) No adjustment of the survey field data will be permitted without the written consent of the DEN Project Manager. If it is determined that an adjustment is necessary, a weighted least squares adjustment method is recommended.
    - b. Primary NGS vertical stations values must be held unless the Contractor has

| TECHNICAL SPECIFICATIONS   | DENVER INTERNATIONAL AIRPORT               |
|--|--|
| DIVISION 01 – GENERAL REQUIREMENTS   | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| SECTION 013223.15 – SURVEY INFORMATION   | CONTRACT NO. 202476290                     |
| determined that there is an issue with one of the values. If this is the case, the |  |

determined that there is an issue with one of the values. If this is the case, the Contractor must notify the DEN Project Manager to determine which other Primary stations can be used.

- c. Secondary Control Project Benchmark Minimum Vertical Accuracy Tolerance:
  - Setting of secondary control benchmarks must meet the Minimum Vertical Accuracy Tolerance of the square root of the total horizontal distance of the level loop in miles multiplied by 0.035 feet.
  - 2) The results of this evaluation must be recorded in the field book for each differential level loop. At least two (2) established NGS benchmarks on the same datum must be used to verify that the starting mark has not been disturbed.
- 5. Whether establishing TSCPs or not, the Contractor must set up a Pre-Survey Preparation Activity meeting with the DEN Project Manager to discuss Geodetic Control Verification, obtain pertinent survey data, and projection parameters before the commencement of any survey work.
- 6. If TSCPs are needed, the Contractor can set and collect temporary control while performing as outlined in Part 1 of this Section. Once the data is collected the Contractor is required to submit all pertinent data to the DEN Project Manager. This data must include all GPS raw data in a Trimble format with an Excel spreadsheet that displays the comparison from each observation of the NGS control stations. The comparison must include showing the delta northings, delta eastings, and delta elevations for each redundant pair of control points Contractor Only the redundant values of the TSCPs should be averaged. The results must be reviewed and accepted by the DEN Project Manager, allowing at least seventy-two (72) hours to review and either approve or reject the temporary control. All TSCPs MUST BE approved before any survey work can commence.
- PART 2 PRODUCTS (NOT USED)
- PART 3 EXECUTION (NOT USED)
- **PART 4 MEASUREMENT**

# 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

#### PART 5 - PAYMENT

#### 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

### END OF SECTION 013223.15

# SECTION 013223.19

# QUANTITY SURVEYS

# PART 1 - GENERAL

### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. This Section covers Denver International Airport DEN procedures and accuracy requirements for survey services for construction layout, as-built and quantity surveys.
- B. Before commencing any field surveys on DEN property, the Contractor must coordinate a pre-survey preparation activities meeting. This meeting is to be arranged through the DEN Project Manager's Office with the attendance of the Contractor, the Contractor's surveyor, and the DEN Survey Section. The Contractor is responsible for obtaining DEN related survey guidance, primary control stations, projection parameters and training materials from the DEN Survey Section prior to beginning any survey work.
- C. Reference Contract General Conditions.

# 1.03 REFERENCE DOCUMENTS:

- A. Section 013326 "Survey Control".
- B. Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples".
- C. Latest version of Federal Aviation Administration Advisory Circular 150/5300
- D. Latest Version of DEN BIM DSM (Design Standards Manual)
- E. Latest Version of Colorado Department of Transportation (CDOT) Survey Manual.
- F. Latest Version of Minimum Standard Detail Requirements for ALTA/ NSPS Land Title Survey

### 1.04 SUBMITTALS

- A. Refer to Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples" for the submittal process.
- B. Weekly Project Status Report:
  - Contractor must submit a project status report in compliance with FAA AC 150/5300-18B to the DEN Project Manager every Monday by 2:00 P.M. Mountain Time, from the date of the task order until the date of Substantial Completion
  - 2. The Weekly Project Status Report must use format from AC 150/5300-18B
- C. Final Project Survey Report:
  - 1. The Final Project Survey Report, must use format from AC 150/5300-18B

2. Final Project Survey Report must be stamped and wet signed by a current Colorado Registered Professional Land Surveyor.

# 1.05 QUALITY REQUIREMENTS

- A. Equipment Calibration:
  - 1. Equipment must be regularly checked, and calibrated for accuracy at the beginning of any survey project to ensure that the equipment is operating appropriately. Errors due to poorly maintained or malfunctioning equipment will not be accepted. If any equipment errors are found to exist they must be reported to the DEN Survey prior to the start of any surveying. These errors must be verified and eliminated prior to performing any survey work. For projects lasting longer than six (6) months, the checking, and calibration of equipment must be repeated. Furthermore, documentation must verify such equipment has met acceptable tolerances.
  - 2. The Contractor must submit to the DEN Project Manager written proof that survey equipment has been checked and calibrated before commencing any survey work. If repairs are made, documentation of such repairs from an authorized equipment vendor must be submitted.
- B. See CDOT Survey Manual for acceptable procedures for calibrating equipment electronic survey instruments adjustments, calibration, or repairs:
  - 1. All electronic survey instruments must be repaired, adjusted, or calibrated only by an authorized equipment vendor or manufacturers service department.
  - 2. A calibration check on all types of electronic survey instrumentation is essential to obtain and maintain the tolerances required for any DEN project. At the beginning of any DEN project, all survey equipment utilized to perform the survey must be calibrated by the surveyor in charge of the Project.
  - 3. See CDOT Survey Manual for acceptable procedures for calibrating equipment.
- C. Baseline Calibration Requirements:
  - 1. See CDOT Survey Manual for the procedures to check the survey equipment and the method of reporting the findings to the DEN Project Manager and the DEN Survey Section.
  - 2. The Contractor must submit to the DEN Project Manager written proof that survey equipment has been checked and calibrated before commencing any survey work. If repairs are made, documentation of such repairs from an authorized equipment vendor must be submitted.

# PART 2 - PRODUCTS (NOT USED)

#### **PART 3 - EXECUTION**

# 3.01 QUANTITY SURVEYS FOR PAYMENT

- A. When the specifications or the DEN Project Manager require items in the Schedule of Prices and Quantities to be measured by surveying methods, the Contractor must perform the surveys.
- B. All such surveys, including control surveys run for establishing the measurement reference lines, must be performed in the presence of the DEN Project Manager or the DEN Project Manager's representative who will witness the surveying operation and who will acknowledge receipt of the field notes or keep duplicate field notes, at the DEN Project Manager's option.

DENVER INTERNATIONAL AIRPORT RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 CONTRACT NO. 202476290

C. The Contractor must reduce the field notes and calculate final quantities for payment purposes. The note reductions and calculations must be given to the DEN Project Manager.

# PART 4 - MEASUREMENT

# 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

# PART 5 - PAYMENT

# 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

# END OF SECTION 013223.19

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TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION

# SECTION 013233

# PHOTOGRAPHIC DOCUMENTATION

# PART 1 - GENERAL

### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

# 1.02 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
  - 1. Preconstruction photographs.
  - 2. Final Completion construction photographs.
  - 3. Web-based construction photographic documentation.

# 1.03 **REFERENCE DOCUMENTS**:

- A. Section 013300 "Submittal Procedures"
- B. Section 017720 "Contract Closeout"
- C. Section 017900 "Demonstration and Training"

# 1.04 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For web-based photographic documentation service provider.
- B. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.
- C. Digital Photographs: Submit image files within three (3) days of taking photographs.
  - 1. Digital Camera: Minimum sensor resolution of 10 megapixels.
  - 2. File Format: Minimum pixels, in unaltered .RAW original files, with same aspect ratio as the sensor, uncropped, date and time stamped, in folder named by date of photograph, accompanied by key plan file.
  - 3. Identification: Provide the following information with each image description in file metadata tag:
    - a. Project title and Project number.
    - b. Name and contact information for photographer.
    - c. Name of DEN Project Manager.
    - d. Name of Contractor.
    - e. Date photograph was taken.
    - f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
      - 1) Include work order number or change order number if applicable.
    - g. Unique sequential identifier keyed to accompanying key plan.
    - h. Photograph number.

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION

# 1.05 QUALITY ASSURANCE

A. Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction projects for not less than three years.

#### 1.06 USAGE RIGHTS

A. Obtain and transfer copyright usage rights from photographer to City and County of Denver for unlimited reproduction of photographic documentation.

# PART 2 - PRODUCTS

# 2.01 PHOTOGRAPHIC MEDIA

A. Digital Images: Provide images in JPG format, produced by a digital camera with minimum sensor size of 10 megapixels, and at an image resolution of not less than 3200 by 2400 pixels.

# PART 3 - EXECUTION

# 3.01 CONSTRUCTION PHOTOGRAPHS

- A. Photographer: Engage a qualified photographer to take construction photographs.
- B. General: Take photographs using the maximum range of depth of field, and that are in focus, to show clearly the Work. Photographs with blurry or out-of-focus areas will not be accepted.
  - 1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- C. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software. Provide commercial quality, digital color photographs in PDF format. PDF file shall be security-free, bookmarked by date with all photos rotated to the correct orientation. Identify the following information on each photograph on the lower right corner.
  - 1. Subject description (include work order number or change order number if applicable)
  - 2. Station point of camera and direction of view. Include letter size diagram of project indicating Station point
  - 3. Date and time each photo was taken
  - 4. Name of Contractor.
  - 5. Photograph number
  - 6. Field Office Images: Maintain one set of images accessible in the field office at Project site, available at all times for reference. Identify images in the same manner as those submitted to DEN Project Manager.
- D. Preconstruction Photographs: Before starting construction, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by DEN Project Manager.
  - 1. Flag construction limits before taking construction photographs.
  - 2. Take 20 photographs to show existing conditions adjacent to property before starting

| TECHNICAL SPECIFICATIONS                    | DENVER INTERNATIONAL AIRPORT               |
|---|--|
| DIVISION 01 – GENERAL REQUIREMENTS          | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION | CONTRACT NO. 202476290                     |
|   |  |

the Work.

- 3. Take 20 photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.
- 4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.
- 5. Haul route, laydown yard, and other locations as directed by DEN Project Manager.
- E. DEN Project Manager-Directed Construction Photographs: From time to time, DEN Project Manager will instruct photographer about number and frequency of photographs and general directions on vantage points. Select actual vantage points and take photographs to show the status of construction and progress since last photographs were taken.
- F. Final Completion Construction Photographs: Take 20 color photographs after date of Substantial Completion for submission as project record documents. DEN Project Manager will inform photographer of desired vantage points.
  - 1. Do not include date stamp.
- G. Additional Photographs: DEN Project Manager may request. Additional photographs shall be paid for by Change Order and are not included in the Contract Sum.
  - 1. Three days' notice shall be given, where feasible.
  - 2. In emergency situations, take additional photographs within 24 hours of request.
  - 3. Circumstances that could require additional photographs include, but are not limited to, the following:
    - a. Special events planned at Project site.
    - b. Immediate follow-up when on-site events result in construction damage or losses.
    - c. Photographs to be taken at fabrication locations away from Project site. These photographs are not subject to unit prices or unit-cost allowances.
    - d. Substantial Completion of a major phase or component of the Work.
    - e. Extra record photographs at time of final acceptance.
    - f. DEN's request for special publicity photographs.

#### PART 4 - MEASUREMENT

# 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

#### PART 5 - PAYMENT

#### 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

# END OF SECTION 013233

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION

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# **SECTION 013300**

# SUBMITTAL PROCEDURES

# PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. The Work specified in this Section summarizes the requirements for the submittal of documents to the DEN Project Manager that are defined in these Specifications. It also describes the procedures for "supplemental" submittals.
- B. The Contractor must follow all the requirements of the procedures and the product details and keep all the submittals current and approved prior to any placement of work.

# 1.03 SUBMITTAL SCHEDULE

- A. The Contractor shall provide a submittal schedule within 14 days after Notice to Proceed. The Submittal Schedule shall be directly related to the CPM schedule, shall identify all the submittals, and shall include the following information for each submittal item
  - 1. Specification section, Contract article, or special condition.
  - 2. Specification Subparagraph.
  - 3. Item description.
  - 4. Date the submittal shall be submitted.
  - 5. Name of subcontractor or supplier.
- B. The submittal schedule shall be kept current by the Contractor and submitted with the progress payment requests.
- C. For large files that cannot be loaded or e-mailed through the electronic Project Manager application (Unifier), submit the files on a CD, DVD, or USB flash drive media.

#### 1.04 ELECTRONIC SUBMITTALS

- A. Before the initiation of the submittal process, coordinate and ensure that all submittals comply and follow the requirements of the DEN Building Information Modeling (BIM) Design Standards Manual (DSM) and the DEN BIM PXP.
- B. Submit request for progress payment applications utilizing TEXTURA software as instructed by DEN Project Manager.
- C. Submit Subcontractor's Contract information required by the City and County of Denver Small Business Office as instructed by DEN Project Manager.
- D. Submit original electronic copies of all City and County of Denver Development Department/ Building Inspection Department Approved drawings including all approvals of Deferred Submittals; including but not limited to shoring plans, Fire Protection distribution plans, and structural shop drawings to DEN Project Manager as Informational Submittals.

| TECHNICAL SPECIFICATIONS              |
|---------------------------------------|
| DIVISION 01 – GENERAL REQUIREMENTS    |
| SECTION 013300 - SUBMITTAL PROCEDURES |

The lack of approval of the Denver Development Services on any document shall be basis for rejection of Work and non-compliance.

- 1. NOTE: Only original copies shall be accepted. Scans will not be accepted.
- E. Submit electronically scanned copies of all documents required by Chapter 17 "Special Inspection and Testing" of the International Building Code 2009 as amended by City and County of Denver 2011. Keep scale and clarify dimension where electronic copies are not as originally scaled and dimensioned.
- F. All submittals shall be delivered to the DEN Project Manager utilizing the Primavera Construction Manager program (PCM) as attachments and as separate file when files are too large to attach or of an electronic media that is not supported by PCM or Utilizing the EPPM Unifier software uploaded to the share drive Unifier's project site when directed by DEN Project Manager.
  - 1. Acceptable electronic formats
    - a. Print document format (pdf) shall have no security and bookmark every applicable submittal. All pages shall be completely legible and oriented to correct reading view.
  - 2. Formats are acceptable only with written permission of the DEN Project Manager or required by the BIM PXP. For files in any of the following formats, the corresponding stringency will apply:
    - a. Microsoft Office 2007 or newer. All files shall be fully compatible with Microsoft Office 2007.
      - 1) AutoCAD files shall be self-contained with no external x-references.
    - b. BIM files shall conform to the standards and formats outlined in the BIM PXP and DEN BIM DSM.
    - c. Portable Document Format (PDF) files shall be compatible with Adobe Acrobat 10.0, non-password-protected, and security-free.
    - d. Other files pre-approved by the DEN Project Manager.

# 1.05 INITIAL SUBMITTAL

- A. Each submittal document shall include a title block showing the following information:
  - 1. Date of submittal and revision dates.
  - 2. Contract title and number.
  - 3. The names of Contractor, subcontractor, supplier, manufacturer and when applicable, the seal and signature of an Engineer registered in the State of Colorado, for the involved discipline.
  - 4. Identification of product by either description, model number, style number or lot number.
  - 5. Subject identification by Contract Drawing or specification reference.
- B. On each submitted drawing, include a blank space on each sheet, three inches by four inches, in the lower right corner, just above the title block, in which the DEN Project Manager or the Designer of Record may indicate the action taken.
- C. Make submissions sufficiently in advance so that the DEN Project Manager Review may be completed not less than 30 days before Work represented by those submittals is scheduled to be performed.
- D. Allow a minimum cycle of 30 days for review of each submittal by the DEN Project Manager.

| TECHNICAL SPECIFICATIONS              |
|---------------------------------------|
| DIVISION 01 – GENERAL REQUIREMENTS    |
| SECTION 013300 - SUBMITTAL PROCEDURES |

- E. Accompany submittal documents with DEN transmittal form CM-30, Submittal, which shall contain the following information:
  - 1. Contractor's name, address and telephone number.
  - 2. Submittal number and date.
  - 3. Contract title and number.
  - 4. Supplier's, manufacturer's, or subcontractor's name, address and telephone number.
  - 5. Identification of variations from Contract Documents.
  - 6. Contractor's stamp and signature certifying the Contractor's review.
  - 7. Identification of submittal:
    - a. If the submittal is being made on a General Condition or Special Condition, reference the General or Special Condition number the first two digits of the specification section shall be 00XXXX.
    - b. If the submittal is being made under a specification section, reference the specification number, paragraph number, and subparagraph number.
    - c. If the submittal is being made under a drawing, reference the drawing(s) number and sub-number.
- F. The Contractor shall describe, at the time of submission, variations from the Contract documents in writing, separate from the submittal document. If the DEN Project Manager approves any such variations, an appropriate Contract change order shall be issued, except that if the variation is minor and does not involve a change in price or in time of performance, a modification need not be issued. If a submission contains variations and the variation column is not marked on the transmittal form, it will not be considered for review and acceptance. Along with marking the transmittal as a variation, a description must be included which outlines all the differences including maintenance and utility services along with any cost savings from an item not containing the variation.
- G. Changes in accepted submittal documents will not be permitted unless those changes have been accepted, in writing, by the DEN Project Manager.
- H. The form and quality of submittal documents shall comply with Section 013325 "Shop and Working Drawings, Product Data, and Samples."

# 1.06 SUPPLEMENTAL SUBMITTALS

A. Supplemental submittal documents initiated by the Contractor for consideration of corrective procedures shall contain sufficient data for review. Make supplemental submittals in the same manner as initial submittals with the appropriate primary transmittal referenced.

# PART 2 - PRODUCTS (NOT USED)

# PART 3 - EXECUTION

# 3.01 CONTRACTOR'S REVIEW

A. The Contractor shall review all submittal documents, stamp, and sign as reviewed and approved as complying with Contract Documents prior to submission to the DEN Project Manager. Submittal documents that are submitted to the DEN Project Manager THAT HAVE NOT BEEN REVIEWED BY THE CONTRACTOR will not be reviewed and will be returned to the Contractor. Contractor is responsible for any delays in the Project due to improperly reviewed, stamped, and signed submittals.

- B. The Owner review period will be limited to ten (10) business days from the time complete submittal documents have been submitted.
- C. The Contractor is responsible to obtain all approvals for all deferred submittals, shop drawings, and significant changes from the CCD Development Service Department.
- D. All submittals must delineate any deviation from the intended design and must submit request for substitution to address any significant variation. Refer to Title 4, Article 405 – Shop Drawings, Product Data, and Samples, and Article 406 – Substitution of Materials and Equipment of the General Contract Conditions, 2011 Edition.

# 3.02 REVIEW BY DEN PROJECT MANAGER

- A. Submittal documents will be reviewed by the DEN Project Manager, the DEN Project Manager Team, and/or the DOR for conformance to requirements of the Contract Documents. Review of a separate item will not constitute review of an assembly in which the item functions. The DEN Project Manager will withhold approval of submittals that depend on other submittals not yet submitted. Review and acceptance will not relieve the Contractor from the Contractor's responsibility for accuracy of submittals, for compliance with all applicable regulations, for compliance with all codes and specifications, for conformity of submittal document to requirements of Contract Drawings and specifications, for compatibility of described product with contiguous products and the rest of the system, or for protection and completion of the Contract in accordance with the Contract Drawings and specifications. Acceptance is not verification or certification that the submittals comply with all requirements nor does it guarantee approval by the Denver Building Department or Denver Fire Department.
- B. The City, the DOR, and/or the DEN Project Manager will review the submittal documents for general conformance with the Contract Documents and mark the Action Code, sign, and date the transmittal.
- C. The Action Codes have the following meanings:
  - 1. Accepted (ACC)
    - a. The submittal conforms to the respective requirements of the contract documents.
  - 2. Accepted as Noted (AAN)
    - a. The submittal conforms to the respective requirements of the Contract Documents after changes are made in accordance with reviewer's comments. AAN submittals do not need to be resubmitted.
  - 3. Revise and Resubmit (R&R)
    - a. The submittal is unacceptable and must be revised and resubmitted.
  - 4. Rejected (REJ)
    - a. The submittal is not approved and a new submittal in accordance with the Contract Documents must be prepared and submitted.
  - 5. For Information Only (FIO)
    - a. An item is received by the DEN Project Manager but is not reviewed.

# 3.03 CONTRACTOR'S RESPONSIBILITIES

A. Coordinate each submittal document with the requirements of the Work. Place particular emphasis upon ensuring that each submittal of one trade is compatible with other submittals of that trade and submittals of other trades including producing as needed drawings showing the relationship of the Work of different trades.

- B. Contractor's responsibility for errors and omissions in submittal documents and associated calculations is not relieved by the DEN Project Manager's review, correction, and acceptance of submittals.
- C. Contractor's liability to the City, in case of variations in the submittal document from the requirements of the Contract Documents, is not relieved by the DEN Project Manager's review and acceptance of submittals containing variations unless the DEN Project Manager expressly approves the deviation in writing, in which the DEN Project Manager describes the variation.
- D. The Contractor shall maintain a file of all approved submittal documents at the work site. The complete file of approved submittal documents shall be turned over to the DEN Project Manager with the as-built documents at the end of the job.
- E. Schedule impact due to resubmittal requirements is the responsibility of the Contractor.

# PART 4 - MEASUREMENT

# 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

# PART 5 - PAYMENT

# 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

# END OF SECTION 013300

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# **SECTION 013325**

# SHOP AND WORKING DRAWINGS, PRODUCT DATA, AND SAMPLES

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

# 1.02 SUMMARY

- A. The Work specified in this Section consists of preparing and submitting shop and working drawings, product data, samples, and record documents required by other specifications Sections.
  - 1. The Contractor shall submit all shop drawings, working drawings, product data, and samples, as defined in the General Conditions, to the DEN Project Manager in accordance with the requirements in the technical specifications. The DEN Project Manager will return one (1) copy of the shop drawings, working drawings and product data to the Contractor with a written transmittal.
- B. The Contractor shall not submit as shop drawings, copies or reproductions of drawings issued to the Contractor by DEN.
- C. Related Requirements
  - 1. Section 013300 "Submittal Procedures
  - 2. Section 012510 "Substitutions"
  - 3. Section 017720 "Contract Closeout"

#### 1.03 SUBMITTALS

- A. All submittals shall be delivered to the DEN Project Manager in electronic format. All submittals must be of a consistent format (all PDF). No combination of electronic file types will be allowed unless required by a specific specification section.
  - 1. Acceptable electronic formats: Comply with the electronic file formats approved by DEN Building Information Modeling (BIM) Design Standards Manual If any of the files are in any of the formats listed below then the version of the software shall be no less than identified below:
    - a. Adobe Acrobat 8.0 or newer. All files shall be fully compatible with Adobe Acrobat 8.0.
    - b. Microsoft Office 2007 or newer. All files shall be fully compatible with Microsoft Office 2007.
    - c. AutoDesk AutoCAD 2007 or newer. All files shall be fully compatible with AutoDesk AutoCAD 2007.
      - 1) AutoCAD files shall be self-contained with no external x-references.
    - d. BIM format outlined in the BIM Project Execution Plan (PXP)
    - e. Other files pre-approved by the DEN Project Manager.
  - 2. Adobe Acrobat Requirements:
    - a. Drawings shall have security set to "No Security." Commenting, printing, adding

photos, form fields and document signing must be allowed.

- b. PDF submittals shall be one continuous file or Portfolio. No external links are allowed.
- c. All individual components of submittals shall be bookmarked inside the PDF file.
- d. All original documents shall be directly converted from the original electronic format to PDF. Scanning of files shall only be allowed by the DEN Project Manager when the original electronic information is not obtainable.
- e. Failure to comply with these requirements will result in a return of file to the Contractor for immediate revision.
- 3. Electronic files submitted shall correspond with DEN File Control Numbering System available from the DEN Project Manager.
- B. Quantities
  - 1. One (1) electronic submittal in Unifier containing electronic files of each shop or working drawing.
  - 2. One (1) electronic submittal in Unifier containing electronic files of manufacturer's standard schematic drawings.
  - 3. One (1) electronic submittal in Unifier containing electronic files of manufacturer's calculations and manufacturer's standard data.
  - 4. One (1) electronic submittal in Unifier containing electronic files of manufacturer's printed installation, erection, application, and placing instructions.
  - 5. Nine (9) samples of each item specified in the various specification sections, unless otherwise specified.
  - 6. One electronic submittal in Unifier containing electronic files of inspection, test reports, and certificates of compliance.
  - 7. Note: If manufacturer's printed information is in color, all copies of submittals must be in color.
- C. Review:
  - 1. Submittal review comments by the DEN Project Manager will be in electronic form and incorporated into the electronic submittal file.
  - 2. Resubmittals of electronic documents shall modify the original electronic file with new information and include the DEN Project Manager's comments with appropriate responses and additional information.

# 1.04 CHANGES

A. Changes in products for which shop or working drawings, product data or samples have been submitted will not be permitted unless those changes have been accepted and approved in writing by the Deputy Manager of Aviation as provided in Section 012510 "Substitutions."

# 1.05 QUALITY CONTROL

- A. Shop drawings and record documents shall be prepared to the standards of quality outlined in the specifications, DSM and BIM PXP, prepared and printed from Revit and checked in the spatial coordination format specified in the BIM PXP.
- B. Refer to DEN DFI DSM for other requirements that may be applicable to this Article.

# PART 2 - PRODUCTS

# 2.01 SHOP AND WORKING DRAWINGS

- A. Prepare shop and working drawings in an electronic format that is current and approved by DEN to a scale large enough to easily depict and annotate each of the various items.
- B. Comply per other BIM requirements for Shop and Working Drawings as established in the DEN BIM DSM.
- C. Include the following as they apply to the subject:
  - 1. Contract title, work order, and number.
  - 2. Respective Contract drawing numbers.
  - 3. Applicable specification section numbers.
  - 4. Relation to adjacent structure or materials.
  - 5. Field dimensions clearly identified as such.
  - 6. Applicable standards such as ASTM or Federal Specification number, FAA, AASHTO, and pertinent authority specifications or standards.
  - 7. Identification of deviations from the Contract Drawings and specifications.
  - 8. Drawing name, number, and revision.
  - 9. Contractor's stamp, initialed or signed, certifying:
    - a. Verification of field measurements.
    - b. Review of submittals for compliance with Contract requirements.
    - c. Compatibility of the Work shown thereon with that of affected trades.
  - 10. Blank space on each sheet per Technical Specifications Section 013300 "Submittal Procedures."
- D. Drawings of equipment and other items that contain multiple parts shall include exploded views showing the relationship of parts and the description of the parts into the smallest units that may be purchased or serviced.
- E. Comply with all submittal requirements of Section 013300 "Submittal Procedures."

#### 2.02 PRODUCT DATA

- A. Modify manufacturer's standard and/or schematic drawings to delete information that is not applicable to the Contract. Supplement standard information with additional information applicable to this Contract.
- B. Modify manufacturer's standard(s), diagrams, schedules, performance charts, illustrations, calculations, and other descriptive data to delete information that is not applicable to the Contract. Indicate dimensions, clearances, performance characteristics, and capacities. Include with the submittal electrical, plumbing, HVAC, and any other diagrams, as applicable.
- C. Modify erection, application, and placing instructions to delete information that is not applicable to the Contract or work order.
- D. Include the following:
  - 1. Contract title, work order, and number.

- 2. Respective Contract drawing numbers.
- 3. Applicable Contract technical specification section numbers.
- 4. Applicable standards such as ASTM or Federal Specification number, FAA, AASHTO and pertinent authority specifications or standards.
- 5. Identification of deviations from the Contract Drawings and specifications.
- 6. Contractor's stamp, initialed or signed, certifying:
  - a. Dimensional compatibility of the product with the space in which it is intended to be used.
  - b. Review of submittals for compliance with Contract requirements.
  - c. Compatibility of the product with other products with which it is to perform or which will be next to it.
  - d. The products electrical, plumbing, control and HVAC requirements conform to Contract Documents and the necessary utilities are provided for in the Contract Documents.
- E. Comply with all submittal requirements of Section 013300 "Submittal Procedures."

# 2.03 SAMPLES

- A. Submit samples of sizes and quantities to clearly illustrate full color range and functional characteristics of products and materials including attachment devices.
- B. Erect field samples and mockups at the work site as specified in specification Sections and at locations acceptable to the DEN Project Manager. All field samples shall be erected in a location that will be readily visible throughout the life of the Contract to allow comparison of the Work as it progresses to the field sample. Field samples and mockups may be incorporated into the Work at Contractor's risk if approved by DEN Project Manager.
- C. The Contractor shall verify, through appropriate inspections and tests, that the samples submitted meet the specifications and shall provide inspection and test data with the samples. The review and comments on the sample shall not relieve the Contractor of the Contractor's responsibility for completion of the Contract.
- D. Show the following information:
  - 1. Contract title and number.
  - 2. Respective Contract drawing numbers.
  - 3. Applicable technical specification section numbers.
  - 4. Applicable standards such as ASTM or Federal Specification number.
  - 5. Identification of deviations from the Contract Drawings and specifications
  - 6. Contractor's stamp, initialed or signed, certifying:
    - a. Dimensional compatibility of the product with the space in which it is intended to be used
    - b. Review of submittals for compliance with Contract requirements
    - c. Compatibility of the product with other products with which it is to perform or which will be next to it
  - 7. If multiple samples are submitted and the DEN Project Manager is requested to make a choice, each sample shall have a unique identification number attached to it so the returned transmittal can state the identification number of the accepted sample and the Contractor will know which one it is.

E. Comply with all submittal requirements of Section 013300 "Submittal Procedures."

### PART 3 - EXECUTION

# 3.01 CONTRACTOR RESPONSIBILITIES

- A. Verify field measurements, catalog numbers, and similar data.
- B. The Contractor shall not start work for which submittals are required until a transmittal has been received by the Contractor marked with the Action Code ACCEPTED or ACCEPTED AS NOTED by the DEN Project Manager.
- C. Before making submittals, ensure that the products will be available in the quantities and at the times required by the Contract.
- D. Submit final, corrected, electronic copies of Contract and shop and working drawings showing the Work as actually installed, placed, erected, and applied. Refer to Section 017720 "Contract Closeout."

# 3.02 REVIEW BY THE DEN PROJECT MANAGER

- One (1) electronic copy of the marked-up shop and working drawing and one (1) electronic copy of the product data will be returned to the Contractor by the DEN Project Manager.
   Only the transmittal form appropriately marked with the Action Code and comments, if any, will be returned on sample submittals.
- B. Contractor's responsibility for errors and omissions in submittals for compatibility will not be reduced, waived or otherwise limited by the review and acceptance of submittals by the DEN Project Manager. Review and acceptance will not relieve the Contractor from the Contractor's responsibility for accuracy of shop drawings, for compliance with all codes and specifications, for conformity to requirements of Contract Drawings and specifications, for compatibility of products with contiguous products and the rest of the system, or for protection and completion of the Contract in accordance with the Contract Drawings and specifications. Approval is not verification or certification that the shop drawings comply with all requirements nor does it guarantee approval by the Denver Building Department or Denver Fire Department.

# PART 4 - MEASUREMENT

#### 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

#### **PART 5 - PAYMENT**

#### 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

### END OF SECTION 013325

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TECHNICAL SPECIFICATIONS DIVISION 01 - GENERAL REQUIREMENTS SECTION 013520 - CONSTRUCTION SAFETY - AIRSIDE

# **SECTION 013520**

# **CONSTRUCTION SAFETY – AIRSIDE**

# PART 1 - GENERAL

### 1.1 **RELATED DOCUMENTS**

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

A. Work specified in this Section includes construction safety precautions and programs by the Contractor for airside, and the basis for reviews by the DEN Project Manager.

Related Specification Sections:

- Section 011420 "Security Requirements and Sensitive Security Information". Section 011430 "Vehicle and Equipment Permitting". Section 011810 "Utilities Interface". Section 013510 "Construction Safety".
- B. For projects enrolled under DEN Rolling Owner Controlled Insurance Program (ROCIP) reference the Contract Special Conditions for all safety requirements.
- For projects enrolled under DEN Owner Controlled Insurance Program (OCIP) reference the Contract Special Conditions for all safety requirements.

# 1.3 **RESPONSIBILITY**

- A. The Contractor is responsible for the health and safety of the Contractor's personnel, agents, subcontractors and their personnel, and other persons on the worksite, for the protection and preservation of the Work and all materials and equipment to be incorporated therein, and for the worksite and the area surrounding the worksite. The Contractor shall take all necessary and reasonable precautions and actions to protect all such persons and property.
- This Section shall be interpreted in its broadest sense for the protection of persons and property by the Contractor and no action or omission by the DEN Project Manager or the DEN Project Manager's authorized representatives shall relieve the Contractor of any of its obligations and duties hereunder.

# 1.4 **SUBMITTALS**

A. Refer to Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples" for the submittal process. The Contractor's Operational Safety Plan shall be submitted and approved under the general Contract prior to commencing any Work. If a Task Order or Change Order is issued where the Work is not covered by the approved Contractor's Operational Safety Plan, then a revision to the Safety Plan specific for TECHNICAL SPECIFICATIONS DIVISION 01 - GENERAL REQUIREMENTS SECTION 013520 - CONSTRUCTION SAFETY - AIRSIDE

the Work in the Task Order shall be resubmitted for approval.

- 1. No progress payment shall be approved until the Contractor's Operational Safety Plan has been accepted by the DEN Project Manager.
- B. Scope: The Contractor's Operational Safety Plan shall be developed and submitted by the contractor for the DEN Project Manager's review and approval. The Operational Safety Plan shall be developed according to the guidelines and requirements provided in FAA AC No. 150/5370-2G "Operational Safety on Airports During Construction" and will describe how the Contractor will comply with the requirements of the Construction Safety and Phasing Plan (CSPP). The Operational Safety Plan shall cover the actions of not only the construction personnel and equipment, but the actions of inspection personnel and airport staff for the duration of construction activities.

# Definitions:

- 1. Approach Surface: A surface longitudinally centered on the extended runway centerline and extending outward and upward from either a runway threshold or 200 feet behind a threshold. This surface is needed to define where unobstructed airspace above the runway begins.
- Notice To Airmen (NOTAM): A notice to the flying public (airmen) through FAA's NOTAM system. Normally initiated by message to the nearest FAA Flight Service Station. Issuance of the NOTAM will be coordinated through the DEN Project Manager and DEN Operations.

Object Free Area: A two-dimensional ground area surrounding runways, taxiways, and taxi lanes that is clear of objects, except for objects whose location is fixed by function.

- Safety Area (see AC 150/5300-13A): A defined surface adjacent to runways, taxiways and taxi lanes prepared or suitable for reducing the risk of damage to aircraft in the event of an undershoot, overshoot or excursion from the paved surface. Each safety area must be cleared and graded and have no potentially hazardous ruts, humps, depressions or other surface variations. Each safety area must be drained by grading or storm sewers to prevent water accumulation. East safety area must be capable under dry conditions of supporting snow removal and aircraft rescue and firefighting equipment and or supporting the occasional passage of aircraft without causing any damage to the aircraft. No objects may be located in any safety area, except for objects that need to be located in a safety area because of their function. These objects must be constructed, to the extent practical, on frangibly mounted structures of the lowest practical height, with the frangible point no higher than three (3) inches above grade.
- C. Policy: Aviation safety is a primary consideration during airport construction. These activities shall be planned and scheduled to minimize disruption of normal aircraft activities. If the clearances and restrictions described in this plan cannot be maintained while construction is underway, action will be taken by the Contractor to perform Work at night or during periods of minimal aircraft activity.

Safety Impacts: The Contractor shall take all necessary steps and precautions to mitigate the impact of hazardous conditions as they may relate to the Work. Potentially hazardous conditions which may occur during airport construction include, but are not limited to, the following:

- 1. Trenches, holes, or excavations on or adjacent to any active runway, taxiway, taxi lane, apron, or related safety areas.
- Unmarked/unlighted holes or excavations on or adjacent to any active runway, taxiway, taxi lane, apron, or related safety areas.
- Mounds or piles of earth, construction material, temporary structures, or other objects on or in

| TECHNICAL SPECIFICATIONS                       |
|--|
| DIVISION 01 - GENERAL REQUIREMENTS             |
| SECTION 013520 - CONSTRUCTION SAFETY - AIRSIDE |

the vicinity of any active runway, taxiway, taxi lane, apron or related safety, approach, or departure areas.

- Pavement drop-offs that would cause, if crossed at normal operating speeds, damage to aircraft that normally use the airport. The maximum drop-off is 3 inches per FAA AC 150/5300-13A.
- Vehicles or equipment (whether operating or idle) on any active runway, taxiway, taxi lane, apron or related safety, approach, or departure areas.
- Vehicles, equipment, excavations, stockpiles, or other materials that could impinge upon NAVAID-critical areas and degrade or otherwise interfere with electronic NAVAIDS or interfere with visual NAVAIDS facilities.
- Unmarked utility, NAVAIDS, weather service, runway lighting, underground power, or signal cables that could be damaged during construction.
- Objects or activities anywhere on or in the vicinity of an airport which would be distracting, confusing, or alarming to pilots during aircraft operations.
- Unflagged/unlighted low visibility items such as tall cranes, backhoes, scrapers, dump trucks, rollers, compactors, dozers and the ilk, in the vicinity of an active runway, taxiway, taxi lane, apron or related safety, approach, or departure areas.
- Dirt, debris, or other transient accumulations that temporarily obscure pavement markings or pavement edges, or derogate the visibility of runway or taxiway markings or lighting or of construction and maintenance areas.
- Trash or other materials with foreign object damage (FOD) potential, whether on runways, taxiways, taxi lanes, aprons or in related safety areas.
- Failure to control vehicle, human and large animal access to, and nonessential nonaeronautical activities on, open aircraft movement areas.
- Failure to maintain radio communication between construction vehicles and air traffic control or other on-field communications facilities.
- Construction activities or material which could hamper Aircraft Rescue and Fire Fighting (ARFF) vehicle access from ARFF stations to all parts of the runway/taxiway system, runway approach and departure areas, or aircraft parking locations.
- Inadequate fencing or other marking to separate construction areas from open aircraft operating areas.
- Bird attractions such as edibles (food scraps, etc.), trees, brush, other trash, grass/crop seeding, or ponded water on or near the airport.
- D. Safety Requirements:
  - 1. General:
    - a. During performance of this Contract, the airport runways, taxiways, taxi lanes, and aircraft parking aprons shall remain in use by aircraft to the maximum extent possible, consistent with continual safety. Aircraft use of areas near the Contractor's Work will be controlled to minimize disturbance to the Contractor's operation. However, AIRCRAFT HAVE THE RIGHT OF WAY AT ALL TIMES. The Contractor shall not allow employees, subcontractors, suppliers, or any unauthorized persons to enter or remain in any airport area that would be hazardous to persons or to aircraft operations.
    - Contractor personnel, airport staff and field inspectors directly involved in on-airport construction shall:
      - Be aware of the types of conditions, safety problems, and/or hazards identified each day at the airport. To insure that all personnel are aware, daily meetings between management and supervisory personnel and their employees shall be scheduled prior to any work commencing on the shift.
         Inspect daily all work and/or storage areas for which the Contractor is responsible to be aware of current conditions.
      - Promptly take all steps needed to remedy any unsafe or potentially unsafe

TECHNICAL SPECIFICATIONS DIVISION 01 - GENERAL REQUIREMENTS SECTION 013520 - CONSTRUCTION SAFETY - AIRSIDE

condition. Coordinate with the DEN Project Manager to insure immediate corrective action is undertaken

- b. Before commencement of construction activity the Contractor, through coordination with the DEN Project Manager and DEN Operations, shall give notice using the NOTAM system of construction on the airfield. In addition, a NOTAM shall be issued for the completion of construction on the airfield.
- 2. Construction Area Marking: Temporary lighting, barricades, flagging, and flashers are required as shown on the plans and per FAA AC 150/5370-2G. Flag lines, traffic cones, flashers, edge lights, and/or signs shall be used as necessary:

a. To clearly separate all construction from other parts of an air operations area

To identify isolated hazards, such as open manholes, excavations, areas under repair, stockpiled material, waste areas, etc.

Vehicle and pedestrian access routes used for airport construction shall be controlled to prevent any unauthorized entry of persons, vehicles, or animals.

- Vehicle parking areas for Contractor employees shall be designated in advance to minimize traffic in open/active aircraft movement areas.
- 3. Cables and Utilities:
  - a. Special attention shall be given to preventing unscheduled interruption of utility services and facilities. The location of all cables and utilities shall be identified prior to construction activities.
  - There shall be coordination among the Contractor, the DEN Project Manager, DEN Operations, the FAA, the National Weather Service, utility companies, and any other appropriate entity or organization. NAVAIDS, weather service facilities, electric cables, and other utilities must be fully protected during the entire construction time.
  - Power, communication, and control cables leading to and from any FAA NAVAIDS, weather service, and other facilities will be marked in the field by the appropriate individuals as identified in Section 011810 "Utilities Interface" for the information of the Contractor before any work in their general vicinity is started. Thereafter, through the entire duration of construction, utilities shall be protected from any possible damage.
  - At the intersection of expansion joints and centerline lighting circuits on taxiways and runways, the electrical conduit may be within the 21" portion of the Portland cement concrete pavement. Coordination with the DEN Project Manager's representative and the DEN Electrical Department is of utmost importance for both the scheduling of an outage and the removal of conductors while cutting the joint.
- 4. Vehicle and Employee Identification:
  - a. Contractor vehicles and equipment shall be flagged for high daytime visibility and if appropriate, lighted for nighttime operations. Vehicles that are not marked and lighted shall be escorted by a vehicle that is equipped with appropriate marking and lighting devices. Marking and lighting shall be in conformance with FAA AC 150/5210-5D, current edition, or as outlined in Section 011430 "Vehicle and Equipment Permitting" of the Contract Documents.
  - The Contractor will be required to conform to the specific requirements as outlined in Section 011420 "Security Requirements and Sensitive Security Information (SSI)" of the Contract documents.

TECHNICAL SPECIFICATIONS DIVISION 01 - GENERAL REQUIREMENTS SECTION 013520 - CONSTRUCTION SAFETY - AIRSIDE

- 5. Radio Communications:
  - a. The Contractor's construction superintendent and flag personnel shall be required to coordinate directly with the DEN Project Manager or designated Representative. Only the DEN Project Manager or designated Representative shall monitor transceiver radios tuned to the frequency for communications with DEN Operations and B Tower Control. Radios shall be used to obtain the proper clearance concerning the movement of equipment, trucks, etc., on the airfield. Further, any unusual occurrences in the flight pattern of approaching or departing aircraft shall be acknowledged by all concerned so that operation of the airport and the construction work can be safely carried on at all times.
- 6. Haul Routes Crossing Active Aircraft Operation Areas:
  - a. The Contractor shall provide a minimum of one (1) broom truck to continuously clean the surface of the active taxiway, taxi lane or apron of any foreign object damage (FOD) or other objectionable debris that may result from hauling activities. Additional broom trucks may be required to expedite the cleanup process. Opening the taxiway, taxi lane, or apron to aircraft operations shall only be approved after a visual inspection of the pavement surface by the DEN Airfield Operations Manager.
  - The Contractor shall not work within the minimum of the following: 160 ft. of the centerline of an active taxiway, 250 ft. of the centerline of an active runway, or the minimum requirements of the FOD or Safety Zone unless otherwise noted in the Contract Documents and as approved in writing by the DEN Project Manager.
  - All construction equipment and vehicles shall be flagged for high daytime visibility and if appropriate, lighted for nighttime operations. Vehicles that are not marked and lighted shall be escorted by a vehicle that is equipped with appropriate marking and lighting devices. Marking and lighting shall be in conformance with FAA AC 150/5210-5D, current edition.
  - All Contractor and Subcontractor employees must be aware of the types of safety problems and hazards associated with aircraft operations and construction activities.

# PART 2 - PRODUCTS

# 2.1 CONTRACTOR'S OPERATIONAL SAFETY PLAN

- A. The Contractor shall provide six (6) copies of the Contractor's Operational Safety Plan to the DEN Project Manager for review at least ten (10) calendar days before on-site construction begins. The Contractor's program must meet, as a minimum, all applicable federal, state and local government requirements, and the following:
  - 1. The Contractor shall provide the following information for acceptance by the DEN Project Manager prior to the commencement of construction activities. The Operational Safety Plan must address all aspects listed below. If an item is not applicable, then this must be noted in the plan.
    - a. Name of the Contractor's safety representative.
    - If the Contractor is running multiple shifts or working more than (40) hours per week, the name of an assistant safety representative who can act in the absence of the site safety representative.
    - Twenty-four (24) hours per day emergency phone numbers of Contractor site management to be used in case of injury or accident. Provide at least four

| TECHNICAL SPECIFICATIONS                       |
|--|
| DIVISION 01 - GENERAL REQUIREMENTS             |
| SECTION 013520 - CONSTRUCTION SAFETY - AIRSIDE |

contacts.

- Means of protecting employees working in trenches and excavations, including sloping and shielding.
  - Soil classification will be considered as Type C when designing protective systems, unless the Contractor can prove to the satisfaction of DEN that the soil classification is otherwise. Soil classification change request shall be provided to the DEN Project Manager in writing. The decision of the DEN Project Manager will be provided to the Contractor in writing.
- b. The Contractor shall show how material shall be stored beside the excavation. Stored material shall include the excavated and backfilled material

Injury and accident handling, including samples of the reporting form.

- How personnel will be handled who are unable to safely perform their duties, including how the Contractor will determine whether personnel are unable to safely perform duties. This may include the Contractor's disciplinary process and employee's physical capabilities to perform the work safely.
- How and when equipment will be checked to see that it is safe, that all safety guards are in place, and that the equipment is being used for its designed purpose and within its rated capacity.
- How and when all electric devices will be checked for proper grounding and insulation. Describe the methods that will be used to lock out electric systems that should not be energized.
- How trash and human organic waste will be disposed of.
- How snow and ice will be removed by the Contractor in the project area.
- How concrete forms will be anchored to ensure their stability, including calculations showing that the forms will safely hold the maximum construction loads.
- How flammable materials will be stored and handled, and how any spills will be cleaned up and removed for disposal.
- What system will be used to prevent fires and, if fires do occur, who will be trained to fight them. In addition, what firefighting equipment will the Contractor have available and how will this equipment's condition be monitored.
- How materials will be received, unloaded, stored, moved, and disposed of.
- How personnel working above ground level will be protected from falling.
- How people working beneath the construction work will be protected.
- What will be done to protect personnel in case of severe weather.
- How adequate lighting will be provided and monitored.
- How air quality will be monitored to ensure that chemical exposures are below current, established OSHA Permissible Exposure Limits. How personnel will be protected if these limits are exceeded.
- How the safety of work platforms, man lifts, material lifts, ladders, shoring, scaffolding, etc., will be ensured relating to load capacity and the protection of personnel using or working around them.
- The type of personal protective equipment that will be used to protect personnel from hazards.
- The type of safety training that will be provided to personnel to inform them of safe work procedures.

How daily audits and inspections will be performed to ensure compliance with the Contractor's Operational Safety Plan and current, applicable OSHA regulations.

Procedures to ensure that welding and other hot work is performed safely.

1) A hot work permit from the Denver Fire Department (DFD) will be required for all welding, soldering, cutting, and brazing and or other processes required by DFD on the project. Contractor will comply with all of the provisions in the permit.

| TECHNICAL SPECIFICATIONS                       |
|--|
| DIVISION 01 - GENERAL REQUIREMENTS             |
| SECTION 013520 - CONSTRUCTION SAFETY - AIRSIDE |

c. How compressed gases will be safely stored, handled, and used. Methods to ensure that personnel safely enter, work in, and exit confined spaces.

- 1) All confined spaces on DEN property are considered permit required. A permit must be obtained from the DFD before Contractor personnel may enter a confined space. Contractors will comply with all provisions and requirements of this permit.
- d. How the hazards of chemicals will be communicated to personnel, including the use of material safety data sheets and chemical labels.
- Methods to ensure that forklifts and other powered industrial trucks are operated in a safe manner.
- How an effective hearing conservation program will be used to protect personnel from high noise levels and prevent hearing loss.
- How personnel will be protected from the effects of jet blast. How hazards will be identified and corrected when reported.

# 2.2 DEN PROJECT MANAGER'S REVIEW

A. Prior to the start of any work by contractor or subcontractor personnel, the Contractor shall provide the DEN Project Manager with a list of its personnel, subcontractor's personnel and other personnel the Contractor has requested to work at Denver International Airport, who have signified in writing that they have been briefed on, or have read and understand, the Contractor's Operational Safety Plan.

# PART 3 - EXECUTION

# 3.1 IMPLEMENT CONTRACTOR'S OPERATIONAL SAFETY PLAN

- A. Implement the approved Contractor's Operational Safety Plan as described in Part 1 and Part 2 of this Section and in Section 011100 "Summary of Work."
- If the Contractor experiences lost time or an injury rate greater than 75 percent of the national average for all construction, the Contractor shall notify the DEN Project Manager, audit its safety procedures, and submit a plan to reduce its rates.
- If at any time the lost time or injury rates experienced by the Contractor are 150 percent or more of the national average for construction, the Contractor shall notify the DEN Project Manager and immediately hire an independent safety professional who shall audit the Contractor's procedures and operations and make a report of changes that the Contractor should implement to reduce the rate including changing personnel.
  - 1. The report shall be submitted to the DEN Project Manager.
  - The Contractor shall immediately begin implementing the recommendations of the independent safety professional.
  - A weekly report shall be submitted by the Contractor to the DEN Project Manager on the status of the implementation of the recommendations.
  - Failure to comply with these requirements is a basis to withhold a portion of progress payments.

TECHNICAL SPECIFICATIONS DIVISION 01 - GENERAL REQUIREMENTS SECTION 013520 - CONSTRUCTION SAFETY - AIRSIDE

# 3.2 ROLLING OWNER CONTROLLED INSURANCE PROGRAM (ROCIP)

A. Implement Rolling Owner Controlled Insurance Program (ROCIP) as provided in the Project Manual issued for bid or proposal

# 3.3 OWNER CONTROLLED INSURANCE PROGRAM (OCIP)

A. Implement Owner Controlled Insurance Program (OCIP) as provided in the Project Manual issued for bid or proposal

# PART 4 - MEASUREMENT

# 4.1 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

# PART 5 - PAYMENT

# 5.1 **METHOD OF PAYMENT**

A. No separate payment will be made for work under this Section.

# END OF SECTION 013520

# **SECTION 014100**

# **REGULATORY REQUIREMENTS**

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. This Section identifies primary compliance with the State's and the City and County of Denver's regulatory requirements including but not limited to:
  - 1. City and County of Denver applicable agencies, including but not limited to its Department of Aviation, Community Planning and Development (including Building Department), Department of Transportation and Infrastructure, and Mayor's Executive Orders.
  - 2. Colorado Department of Public Health and Environment; and
  - 3. The standards that govern design and construction projects at Denver International Airport; and
  - 4. Any other regulatory requirements that govern or apply to the specific work.
- B. Construction shall be based on the latest edition of the referenced codes including additions and revisions thereto that are in effect at the time of Project bidding or Task Order pricing or GMP established whichever is latest, and as specifically related.

# 1.03 RELATED SECTIONS

A. Section 015719 "Temporary Environmental Controls" for environmental and related permitting requirements.

#### 1.04 BUILDING CODE

- A. All design and construction work shall be governed by the Building Code for the City and County of Denver, latest edition. This is based upon the International Building Code of the International Code Council with Denver Amendments to this code. Appendix N of the Denver Amendments addresses Construction of Airport Buildings and Structures.
  - 1. This Contract shall be based on the most current published version of the ICC series as Amended by The City and County of Denver.

# 1.05 DENVER BUILDING DEPARTMENT

A. For review and approval of all construction documents for compliance to the Denver building code:

Community Planning and Development 201 W. Colfax Ave., Dept 205 Denver, CO 80202 Telephone: 720-865-2790

# 1.06 DENVER FIRE DEPARTMENT

A. For review and approval of plans for compliance with the Denver Fire Department's requirements as they apply to the Denver International Airport: Denver Fire Department

725 West Colfax Avenue Denver, CO 80204 Telephone: 720-913-3474

- B. The Contractor is advised that the Denver Fire Department Fire Prevention Bureau requires permitting for the following activities as they apply to the scope of work. The Contractor is responsible for obtaining the appropriate permits necessary to complete the work including, but not limited to, the work listed below. All costs associated with this permitting and policy compliance shall be the responsibility of the Contractor. The policies all reference the International Fire Code (IFC).
  - 1. "Hot work", which is defined as the operation of any equipment or tool that creates sparks, hot slag, or radiant or convective heat as a result of the work. This includes, but is not limited to, welding, cutting, brazing, or soldering.
  - 2. Use and storage of compressed gas for both temporary storage and permanent facility installation. This includes, but is not limited to, flammable gas (excluding propane-LPG), oxidizer (including oxygen), and inert and/or simple asphyxiates.
  - 3. Tank installation, which includes aboveground storage tanks (AST) and underground storage tanks (UST) for both temporary tanks and permanent facility installations.
  - 4. Access to and work within areas that are designated as confined spaces.
- C. In addition to the above permits, the Denver Fire Department may require other permits that are associated with the specific work in the Contract Documents. Policies provided by the Denver Fire Department are meant to provide basic information for the most common conditions and situations. In any given occupancy, many other Uniform Fire Code requirements may be enforced. These should be addressed with the Denver Fire Department before construction begins and during construction with premise inspection(s).
  - 1. The Fire Prevention Bureau web site is denfpb@denvergov.org

# PART 2 - PRODUCTS (NOT USED)

#### PART 3 - EXECUTION

#### 3.01 PERMITS AND CERTIFICATIONS

- A. The Contractor shall maintain records on site of all permits acquired by federal, state, and local agencies. Posting of permits shall conform to requirements of the respective agencies.
- B. At the completion of any inspection by other agencies, the Contractor shall forward copies of the status of the inspection and copies of any approved or "signed-off" inspections by the respective agencies to the DEN Project Manager.
- C. At the time of request for Substantial Completion, the Contractor shall forward to the DEN Project Manager all permits approved by the respective agencies.

# PART 4 - MEASUREMENT

# 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

### PART 5 - PAYMENT

#### 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

# **END OF SECTION 014100**

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TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 014210 - REFERENCED MATERIAL

# **SECTION 014210**

# **REFERENCED MATERIAL**

# PART 1 - GENERAL

### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

# 1.02 REFERENCED MATERIAL

- A. City and County of Denver, Department of Aviation, Standard Specification for Construction, General Contract Conditions
- B. The following documents may be available for examination at the Owner's offices unless otherwise noted. The referenced material and documents are not part of the Contract Documents unless otherwise specified.
  - 1. Environmental Impact Statement (EIS).
  - 2. Geotechnical Reports:
    - a. Borings, other field and laboratory explorations, and investigations have been made to indicate subsurface materials at particular locations. Explorations and investigations conducted by designers and their subconsultants are solely for the purpose of study and design.
    - b. The subsurface exploration and investigation information is presented or made available to indicate some of the conditions that may be encountered during construction and is offered as supplementary information only. Geotechnical information presented in the referenced material represents the opinion of soils consultants as to the character of the materials encountered. Subsurface information was directly obtained only at the specified location and necessarily indicates subsurface conditions only at the respective plan location, depths penetrated and only at the time of the exploration.
    - c. Neither the City nor the Designers assume any responsibility whatever in respect to the sufficiency or accuracy of borings made, or of the logs of test borings, or of other investigations, or of the interpretations made thereof, and there is no warranty or guarantee, either expressed or implied, that the conditions indicated by such investigations are representative of those existing throughout such area, or any part thereof, or that unforeseen developments may not occur. It is expressly understood that the making of deductions, interpretations, and conclusions from all of the accessible factual information, including the nature of the materials to be excavated, the difficulties of doing other work affected by the geology, groundwater elevations and other subsurface conditions at the site of the Work are the Contractor's sole responsibility.
    - d. Information derived from inspection of logs of borings, topographic maps, technical memorandum, reports, or plans showing information of the subsurface of site conditions will not relieve the Contractor from any risk or from properly examining the site and making such additional investigations as the Contractor may elect or from properly fulfilling all the terms of the Contract Documents.
  - 3. Available Conceptual Utility and Drainage Reports.
  - 4. DEN Digital Facilities and Infrastructure (DFI) Design Standards Manual (DSM)
  - 5. Woolpert, Inc. Report "A Low Distortion Projection for Denver International Airport

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 014210 - REFERENCED MATERIAL

(DEN)", dated 12/10/2010.

- PART 2 PRODUCTS (NOT USED)
- PART 3 EXECUTION (NOT USED)
- PART 4 MEASUREMENT

#### 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

#### PART 5 - PAYMENT

#### 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

# END OF SECTION 014210

# **SECTION 014220**

## ABBREVIATIONS AND SYMBOLS

## PART 1 - GENERAL

## 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Edit and/or insert items in list below as required for Project.

#### 1.02 REFERENCE LIST

- A. Documents published by the following agencies may be referenced within these Contract Documents to define the quality of materials, equipment, workmanship, and other features of Work. Unless otherwise stated, the reference documents shall be of the latest edition as of the date of the Advertisement for Bids.
- B. Wherever used in the Contract Documents, the following abbreviations will have the meanings listed:

| Abbreviation | Definition   |  |  |
|--------------|--|--|--|
| AALA         | American Association of Laboratory Accreditation                   |  |  |
| AAN          | American Association of Nurserymen                                 |  |  |
| AAO          | Affirmative Action Officer   |  |  |
| AASHTO       | American Association of State Highway and Transportation Officials |  |  |
| ACI          | American Concrete Institute  |  |  |
| ADA          | Americans with Disabilities Act                                    |  |  |
| AFI          | Air-Filter Institute   |  |  |
| AGTS         | Automated Ground Transportation System                             |  |  |
| AIA          | American Institute of Architects                                   |  |  |
| AISC         | American Institute of Steel Construction                           |  |  |
| AISI         | American Iron and Steel Institute                                  |  |  |
| AITC         | American Institute of Timber Construction                          |  |  |
| AMCA         | Air Moving and Conditioning Association                            |  |  |
| ANSI         | American National Standards Institute, Inc.                        |  |  |
| APA          | American Plywood Association                                       |  |  |
| APEN         | Air Pollution Emission Notes                                       |  |  |
| APWA         | American Public Works Association                                  |  |  |
| ARI          | Air Conditioning and Refrigeration Institute                       |  |  |
| ASCE         | American Society of Civil Engineers                                |  |  |
| ASHRAE       | American Society of Heating, Refrigeration, and Air Conditioning   |  |  |
|              | Engineers  |  |  |
| ASME         | American Society of Mechanical Engineers                           |  |  |
| ASNT         | American Society for Non-Destructive Testing                       |  |  |
| ASPE         | American Society of Plumbing Engineers                             |  |  |
| ASSE         | American Society of Sanitary Engineering                           |  |  |
| ASTM         | American Society for Testing and Materials                         |  |  |
| AWPA         | American Wood Preserver's Association                              |  |  |
| AWS          | American Welding Society   |  |  |
| AWWA         | American Water Works Association                                   |  |  |
| BID          | Building Inspection Division, Department of Public Works           |  |  |
| BIM          | Building Information Modeling                                      |  |  |

| 220 - ABBREVIATIONS AND SYMBOLS CONTRACT NO |  |  |  |  |
|---|--|--|--|--|
| Abbreviation                                | Definition   |  |  |  |
| CAR   | Corrective Action Report   |  |  |  |
| CCD   | City and County of Denver  |  |  |  |
| CCR   | Contractor Change Request  |  |  |  |
| CCRL  | Cement Concrete Reference Laboratory                                     |  |  |  |
| CD  | Change Directive   |  |  |  |
| CDOH  | Colorado Department of Highways or Colorado Department of Health         |  |  |  |
| CDOT  | Colorado Department of Transportation                                    |  |  |  |
| CMEC  | Concrete Materials Engineering Council                                   |  |  |  |
| CN  | Change Notice  |  |  |  |
| CO  | Change Order   |  |  |  |
| COE   | Corps of Engineers   |  |  |  |
| CPM   | Critical Path Method   |  |  |  |
| CR  | Change Request   |  |  |  |
| CRSI  | Concrete Reinforcing Steel Institute                                     |  |  |  |
| CSI   | Construction Specifications Institute                                    |  |  |  |
| DEN   | Denver International Airport   |  |  |  |
| DFD   | Denver Fire Department   |  |  |  |
| DOT   | United States Department of Transportation                               |  |  |  |
| DOR   | Designer of Record   |  |  |  |
| DWB   | Denver Water Board   |  |  |  |
| EEO   | Equal Employment Officer or Equal Employment Opportunity                 |  |  |  |
| EIA   | Electronics Industry Association   |  |  |  |
| EIS   | Environmental Impact Statement   |  |  |  |
| EPA   | Environmental Protection Agency  |  |  |  |
| FAA   | Federal Aviation Administration  |  |  |  |
| FCC   | Federal Communications Commission  |  |  |  |
| FHWA  | Federal Highway Administration   |  |  |  |
| FM  | Factory Mutual Association   |  |  |  |
| FS  | Federal Specifications (U.S. General Services Administration)            |  |  |  |
| GCC   | General Contract Conditions  |  |  |  |
| GIS   | Geographic Information Systems   |  |  |  |
| GMP -                                       | Guaranteed Maximum Price   |  |  |  |
| IAPMO                                       | International Association of Plumbing and Mechanical Officials           |  |  |  |
| IBC   | International Building Code (published by ICC)                           |  |  |  |
| IBR   | Institute of Boiler and Radiator Manufacturer's                          |  |  |  |
| ICBO  | International Conference of Building Officials                           |  |  |  |
| ICC   | International Code Council   |  |  |  |
| ICEA  | Insulated Cable Engineers Association                                    |  |  |  |
| IEEE  | Institute of Electrical and Electronic Engineers                         |  |  |  |
| IES   | Illuminating Engineering Society   |  |  |  |
| IMC   | International Mechanical Code (published by ICBO)                        |  |  |  |
| IPC   | International Plumbing Code (published by ICBO)                          |  |  |  |
| ISA   | Instrument Society of America  |  |  |  |
| ITA   | Independent Testing Agency   |  |  |  |
| MIL   | Military Specifications (Naval Publications and Forms Center)            |  |  |  |
| MSS   | Manufacturers Standardization Society of the Valve and Fittings Industry |  |  |  |
| MUTCD                                       | Manual of Uniform Traffic Control Devices                                |  |  |  |
| NAAB  | National Association of Air Balance                                      |  |  |  |
| NACE  | National Association of Corrosion Engineers                              |  |  |  |
| NBS   | National Bureau of Standards (now called National Institute of Standards |  |  |  |
|   | and Technology)  |  |  |  |
| NEC   | National Electric Code (NFPA 70)   |  |  |  |
| NECA  | National Electric Contractors Association                                |  |  |  |
| NEMA  | National Electrical Manufacturer's Association                           |  |  |  |
|   |  |  |  |  |

| Abbreviation | Definition   |  |  |  |
|--------------|--|--|--|--|
| NESC         | National Electrical Safety Code                                      |  |  |  |
| NFC          | National Fire Code (as published by NFPA)                            |  |  |  |
| NFPA         | National Fire Protection Association                                 |  |  |  |
| NICET        | National Institute for the Certification of Engineering Technologies |  |  |  |
| NIST         | National Institute of Standards and Technology                       |  |  |  |
| NGS          | National Geological Survey   |  |  |  |
| NLMA         | National Lumber Manufacturers Association                            |  |  |  |
| NOAA         | National Oceanic and Atmospheric Administration                      |  |  |  |
| NRMCA        | National Ready Mix Concrete Association                              |  |  |  |
| NTP          | Notice to Proceed  |  |  |  |
| NVLAP        | National Voluntary Laboratory Accreditation Program                  |  |  |  |
| OSHA         | Occupational Safety and Health Administration                        |  |  |  |
| PCA          | Portland Cement Association  |  |  |  |
| PCI          | Prestressed Concrete Institute                                       |  |  |  |
| PDM          | Precedent Diagram Method   |  |  |  |
| PS           | Product Standard of NIST (U.S. Department of Commerce)               |  |  |  |
| PM           | Project Manager  |  |  |  |
| PMT          | Project Management Team  |  |  |  |
| PXP          | Project Execution Plan   |  |  |  |
| QA           | Quality Assurance  |  |  |  |
| QC           | Quality Control  |  |  |  |
| RFI          | Request for Information  |  |  |  |
| RTD          | Regional Transportation District                                     |  |  |  |
| SC           | Special Contract Condition   |  |  |  |
| SDI          | Steel Door Institute   |  |  |  |
| SMACNA       | Sheet Metal and Air Conditioning Contractor's National Association   |  |  |  |
| SSPWC        | Standard Specifications for Public Works Construction                |  |  |  |
| TCP          | Traffic Control Plan   |  |  |  |
| TSA          | Transportation Security Administration                               |  |  |  |
| UL           | Underwriters Laboratories, Inc.                                      |  |  |  |
| USC          | United States Code   |  |  |  |
| WBS          | Work Breakdown Schedule  |  |  |  |

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

#### **PART 4 - MEASUREMENT**

## 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

# PART 5 - PAYMENT

## 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

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TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 014225 - REFERENCE STANDARDS

# **SECTION 014225**

### **REFERENCE STANDARDS**

## PART 1 - GENERAL

## 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. This Section contains a summary of industry-accepted and recognized standards published by trade associations, government, and institutional organizations that are referred to in the various Sections of these specifications or elsewhere in the Contract Documents.
- B. Standards listed herein are included in the Contract Documents by this reference and become a part of the Contract Documents to the same extent as though included in their entirety unless specific limitations are noted in the individual specifications Sections.
- C. Listings of reference standards include name and address of the organization publishing the standard, and the full name and designator of each of the standards referenced herein.
- D. If a publication date or edition number is listed with the reference standard, that publication date or edition number shall apply. Otherwise, the publication date or edition number in effect at the Contract date shall apply.
- E. Inclusion of reference standards herein does not make the DEN Project Manager an agent of the publishing agency, nor does it obligate the DEN Project Manager to perform inspections required by or to enforce rules or regulations contained in the reference standards.

## 1.03 SCHEDULE OF REFERENCE STANDARDS

- A. American Association of State Highway and Transportation Officials (AASHTO), 444 North Capitol Street, NW, Suite 249, Washington, DC 20090:
  - 1. AASHTO M 36–Corrugated Steel Pipe, Metallic-Coated for Sewers and Drains.
  - 2. AASHTO M216–Standard Specification for Lime for Soil Stabilization.
  - 3. AASHTO T26–Standard Method of Test for Water to be Used in Concrete.
  - 4. AASHTO T84–Specific Gravity and Absorption of Fine Aggregate.
  - 5. AASHTO T85–Specific Gravity and Absorption of Coarse Aggregate.
  - 6. AASHTO T103–Soundness of Aggregates by Freezing and Thawing
  - 7. AASHTO T219–Standard Methods of Testing Lime for Chemical Constituents and Particle Sizes.
- B. American Concrete Institute (ACI) 38800 Country Club Drive, Farmington Hills, MI 48331
  - 1. ACI 211.1–Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete.
  - 2. ACI 301–Specifications for Structural Concrete for Buildings.

| TECHNICAL SPECIFICATIONS             |
|--------------------------------------|
| DIVISION 01 – GENERAL REQUIREMENTS   |
| SECTION 014225 - REFERENCE STANDARDS |

- 3. ACI 304–Recommended Practices for Measuring, Mixing, Transporting and Placing Concrete.
- 4. ACI 304.2R–Placing Concrete by Pumping Methods.
- 5. ACI 305R–Hot Weather Concreting.
- 6. ACI 306R–Cold Weather Concreting.
- 7. ACI 318–Building Codes Requirements for Structural Concrete
  - a. Reference to ACI 318 may be limited to more stringent requirements of local building code.
- C. American Society for Testing and Materials (ASTM), International 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428:
  - 1. ASTM A 27–Mild to Medium Strength Carbon Steel Casting for General Application.
  - 2. ASTM A 36–Structural Steel.
  - 3. ASTM A 47–Malleable Iron Castings.
  - 4. ASTM A 82—Specification for Steel Wire, Plain, for Concrete Reinforcement: Replaced by A1064
  - 5. ASTM A 123–Hot-dip Galvanizing.
  - 6. ASTMA 184–Specification for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement.
  - 7. ASTM A 185—Specifications for Steel Welded Wire, Fabric, Plain, for Concrete Reinforcement: Replaced by A1064
  - 8. ASTM A 283–Low and Intermediate Tensile Strength Carbon Steel Plates, Shapes and Bars.
  - 9. ASTM A 615–Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
  - 10. ASTM A 706–Specification for Low-Alloy Steel Deformed Bars for Concrete Reinforcement.
  - 11. ASTM C 25–Method for Chemical Analysis of Limestone, Quicklime, and Hydrated Lime.
  - 12. ASTM C29–Unit Weight and Voids in Aggregate
  - 13. ASTM C 31–Methods of Making and Curing Concrete Test Specimens in the Field.
  - 14. ASTM C 33–Specification for Concrete Aggregates.
  - 15. ASTM C 39–Test Method for Compressive Strength of Cylindrical Concrete Specimens.
  - 16. ASTM C 42–Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
  - 17. ASTM C 76–Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
  - 18. ASTM C 88–Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
  - 19. ASTM C 94–Specification for Ready Mixed Concrete.
  - 20. ASTM C 109–Compressive Strength of Hydraulic Cement Mortars
  - 21. ASTM C 110–Methods for Physical Testing of Quicklime, Hydrated Lime, and Limestone.
  - 22. ASTM C 117–Materials Finer than 75 mm (No. 200) Sieve in Mineral Aggregates by

| TECHNICAL SPECIFIC<br>DIVISION 01 – GENER<br>SECTION 014225 - RE |  | DENVER INTERNATIONAL AIRPOR<br>RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE<br>CONTRACT NO. 20247629     |
|--|--|--|
|  | Washing.   |  |
| 23.  | ASTM C 131–Resistance of Ab<br>Los Angeles Machine.              | orasions of Small Size Coarse Aggregate by Use of the  |
| 24.  | ASTM C 136–Method for Sieve                                      | Analysis of Fine and Coarse Aggregates.  |
| 25.  | ASTM C 138–Unit Weight, Yiel                                     | d, and Air Content of Concrete.  |
| 26.  | ASTM C 143–Test Method for                                       | Slump of Hydraulic – Cement Concrete   |
| 27.  | ASTM C 150–Specification for                                     | Portland Cement  |
| 28.  | ASTM C 171–Specification for                                     | Sheet Material for Curing Concrete.  |
| 29.  | ASTM C 172–Method of Samp  | ling Fresh Concrete.   |
| 30.  | ASTM C 173–Test Method for A Volumetric Method.                  | Air Content of Freshly Mixed Concrete by the   |
| 31.  | ASTM C 231–Test Method for A Method.                             | Air Content of Freshly Mixed Concrete by the Pressure  |
| 32.  | ASTM C 260–Specification for                                     | Air Entraining Admixture for Concrete.   |
| 33.  | ASTM C 309–Specification for Concrete.                           | Liquid Membrane-Forming Compounds for Curing   |
| 34.  | ASTM C 443–Joints for Concre                                     | te Pipe and Manholes, using Rubber Gasket  |
| 35.  | ASTM C 494–Specification for                                     | Chemical Admixtures for Concrete.  |
| 36.  | ASTM C 595–Blend Hydraulic                                       | Cements.   |
| 37.  | ASTM C 618–Specification for for use in Concrete                 | Coal Fly Ash and Raw or Calcined Natural Pozzolan  |
| 38.  | ASTM C 655–Reinforced Conc                                       | rete D Load Culvert, Storm Drain, and Sewer Pipe.  |
| 39.  | ASTM C 789—Precast Reinfor<br>and Sewers: Replaced by C143       | ced Concrete Box Sections for Culverts, Storm Drains<br>33   |
| 40.  | ASTM C 803–Test Method for                                       | Penetration Resistance of Hardened Concrete.   |
| 41.  | ASTM C 805–Test Method for                                       | Rebound Number of Hardened Concrete.   |
| 42.  | ASTM C 977–Specification for                                     | Quicklime and Hydrated Lime for Soil Stabilization.  |
| 43.  | ASTM D 75–Sampling Aggrega                                       | ate.   |
| 44.  | ASTM D 422–Test Method for                                       | Particle Size Analysis of Soils.   |
| 45.  | ASTM D 516-88–Standard Tes                                       | t Method for Sulfate lons in Water.  |
| 46.  |  | Crushed Slag and Crushed Gravel for Dryer Water-<br>s and Bituminous Macadam Base and Surface<br>awn |
| 47.  | ASTM D 698–Laboratory Comp                                       | paction Characteristics of Soil using Standard Effort  |
| 48.  | ASTM D 751–Test Method for                                       | Coated Fabrics   |
| 49.  | ASTM D 1556–Test Method for                                      | Density of Soil in Place by the Sand-Cone Method.  |
| 50.  | ASTM D 1557–Laboratory Con                                       | npaction Characteristics of Soil using Modified Effort   |
| 51.  | ASTM D 1682—Ultraviolet Res<br>Toughness: Replaced by D503       | istance Grab Tensile Strength Grab Tensile Elongation<br>4 and D5035                                 |
| 52.  | ASTM D 1751–Specification for<br>Paving and Structural Construct | r Preformed Expansion Joint Fillers for Concrete<br>tion.  |
| 53.  | ASTM D 1752–Specification for                                    | r Preformed Sponge Rubber and Cork Expansion Join  |

|            | GENER   | CATIONS<br>RAL REQUIREMENTS<br>EFERENCE STANDARDS   | DENVER INTERNATIONAL AIRPORT<br>RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2<br>CONTRACT NO. 202476290 |  |  |  |
|------------|---|---|--|--|--|--|
|            |   | Fillers for Concrete Paving and S   |  |  |  |  |
|            | 54.   | ASTM D 2167–Test Method for Density of Soil in Place by the Rubber-Balloon Method.  |  |  |  |  |
|            | 55.   | ASTM D 2216–Method for Laboratory Determination of Water (Moisture) Content of Soil, Rock and Soil Aggregate Mixtures.                        |  |  |  |  |
|            | 56.   | ASTM D -79 (2011) Hydroxypro  | byl Methylcellulose  |  |  |  |
|            | 57.   | ASTM D 2419–Sand Equivalent   | Value of Soils and Fine Aggregate.   |  |  |  |
|            | 58.   | ASTM D 2487–Test Method for   | Classification of Soils for Engineering Purposes.  |  |  |  |
|            | 59.   | ASTM D 2922—Test Method for<br>Nuclear Method: Replaced by D  | Density of Soil and Soil-Aggregate in Place by 6938  |  |  |  |
|            | 60.   | ASTM D 3017—Test Method for<br>by Nuclear Methods (Shallow De   | Moisture Content of Soil and Soil-Aggregate in Place<br>epth): Replaced by D6938                     |  |  |  |
|            | 61.   | ASTM D 3665–Random Samplir  | ng of Paving Materials.  |  |  |  |
|            | 62.   | ASTM D 4253–Test Method for<br>Table.   | Maximum Index Density of Soils Using Vibratory   |  |  |  |
|            | 63.   | ASTM D 4318–Test Method for   | Liquid Limit, Plastic Limit, and Plasticity Index of Soils   |  |  |  |
|            | 64. ASTM D 4397–Specification for Polyethylene Sheeting for Construction, Indus<br>Agricultural Applications. |   |  |  |  |  |
|            | 65.   | ASTM D 4546–Test Method for Cohesive Soils.   | One-Dimensional Swell or Settlement Potential of   |  |  |  |
|            | 66.   | ASTM E 329–Specification for A<br>or Special Inspection   | gencies Engaged in Construction Inspection, Testing  |  |  |  |
|            | 67.   | ASTM F 477–Elastomeric Seals  | (Gaskets) for Joining Plastic Pipe.  |  |  |  |
|            | 68.   | ASTM F 758–Smooth-Wall Poly<br>for Highway, Airport and Similar   | (Vinyl Chloride) (PVC) Plastic Underdrain Systems<br>Drainage.                                       |  |  |  |
| D.         |   | American Welding Society (AWS), 550 NW LeJeune Road, Miami, FL 33135 AWS Code for Velding in Building Construction (Structural Welding Code). |  |  |  |  |
| E.         |   | crete Reinforcing Steel Institute (C<br>95, (312) 490-1700:   | CRSI) 933 N. Plum Grove Road, Schaumburg, IL   |  |  |  |
|            | 1.  | Manual of Standard Practice.  |  |  |  |  |
| F.         |   | orado Department of Transportatio<br>Is, 4201 E. Arkansas Avenue, Der   | n (CDOT) Division of Administration, Office of Bid<br>over, CO 80222:                                |  |  |  |
|            | 1.  | Standard Specifications for Road Standard Plans, M&S Standards  | d and Bridge Construction (latest edition) Colorado  |  |  |  |
| G.         |   | Federal Highway Administration (FHWA) Superintendent of Documents, US Government<br>Printing Office, Washington DC, 20402:                    |  |  |  |  |
|            | 1.  | Manual of Uniform Traffic Contro  | ol Devices (latest edition).   |  |  |  |
| ART 2 - PR | ODU   | CTS (NOT USED)  |  |  |  |  |
|            |   |   |  |  |  |  |
| ART 3 - EX | ECU   | TION (NOT USED)   |  |  |  |  |

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 014225 - REFERENCE STANDARDS

# PART 4 - MEASUREMENT

## 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

### PART 5 - PAYMENT

#### 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 014225 - REFERENCE STANDARDS

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## SECTION 014230

## DEFINITIONS AND CONVENTIONS

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

A. This Section contains a list of definitions of words or phrases and grammatical or contextual conventions commonly used in these Contract Documents.

#### 1.03 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. Alphabetical Listing of Definitions:
  - 1. As indicated: Shown on the drawings by graphic indication, notes, or schedules, or written in the specifications or elsewhere in the Contract Documents.
  - 2. As directed, as approved, as requested: Unless otherwise indicated, these terms imply "by the DEN Project Manager" and require that an instruction be obtained by the Contractor from the DEN Project Manager.
  - 3. Concealed: Embedded in masonry, concrete, or other construction; installed in furred spaces; within double partitions or hung ceilings; in trenches; in crawl spaces or in enclosures.
  - 4. Ensure: To make certain in a way that eliminates the possibility of error.
  - 5. Exposed: Not installed underground or "concealed" as defined above.
  - 6. Furnish or Provide: To supply, install and connect complete and ready for safe and regular operation of particular work unless specifically otherwise noted.
  - 7. Indicated, Shown, or Noted: As depicted on drawings or specifications.
  - 8. Install: To erect, mount and connect complete with related accessories.
  - Or equal, or approved equal: Refers to products which, in the opinion of the DEN Project Manager, are similar in all respects to products specified by proprietary brand name. Refer to Section 012510 "Substitutions" for procedures for submittal of proposed substitutions.
  - 10. Rework: To repair existing items or work required to be removed and replaced in order to accomplish the Work in accordance with the Contract Documents.
  - 11. Related Work: Includes, but not necessarily limited to, mentioned work associated with, or affected by, the Work specified.
  - 12. Reviewed, Satisfactory, Accepted, or Directed: Assumes by or to the DEN Project Manager.
  - 13. Similar, or Equal: Same in materials, weight, size, design, construction, capacity, performance, and efficiency of specified product.
  - 14. Supply: To purchase, procure, acquire and deliver complete with related accessories.

- 15. Unless Otherwise Indicated and Unless Otherwise Noted: General note to perform work as indicated or shown on drawings or in specifications unless specifically directed otherwise elsewhere in the Contract Documents; may be abbreviated "U.O.N.", "U.O.I.", or "U.N.O.".
- C. BIM Model Definitions:
  - 1. Building Information Model (BIM): BIM is a digital representation of the physical and functional characteristics of the Project and is referred as a Model(s), which term may be used to describe a Model Element, a single Model or technology used to create the Model.
  - 2. Design Model: A Model that has reached the stage of completion that would customarily be expressed by an architect or engineer in two-dimensional Construction Documents.
  - 3. Construction Model: The equivalent of shop drawing and other information useful to construction. A model that consists of data imported from a "Design Model or", if none exist, from a designer's "Construction Document".
  - 4. Federated Model: Distinct component models "linked" together in such a manner that the linked data sources so not lose the indent or integrity by being so linked.
  - 5. Level of Development (LoD): LoD describes the level of completeness to which a Model Element is developed.
  - 6. Model Element: Is a portion of the BIM representing a component system or assembly within a building or building site.
  - 7. Model Element Author: The party responsible for developing the content of a specific Model Element to the LoD for a particular phase of the Project.

# 1.04 BIM REFERENCE STANDARDS

A. Refer to the DEN BIM Design Standard Manual (DSM) for the proposed minimum requirements of the BIM Execution Plan. The execution plan shall be further developed jointly with DEN and the Contractor to specifically address the administrative steps necessary to provide comprehensive BIM system before during and after construction.

# 1.05 CONVENTIONS

- A. Specifications Format:
  - 1. In order to standardize the location of information in the Contract Documents, the specifications generally are organized in one or more of the following formats:
    - a. The "MASTERFORMAT" 2011 Edition published by the Construction Specifications Institute.
    - b. The Standard Specifications for Road and Bridge Construction published by CDOT.
    - c. The alphanumeric system as published by the FAA.
- B. Organization of Drawings and Specifications:
  - 1. Organization of the specifications into divisions and sections, and arrangement or numbering of drawings is intended solely for the convenience of the Contractor in the Contractor's responsibilities to divide the Work among subcontractors or to establish the extent of work to be performed by any trade.
  - 2. Neither the City nor the DEN Project Manager assume any liability arising out of jurisdictional issues or claims advanced by trade organizations or other interested parties based on the arrangement or organization of drawings or specifications.

- C. Gender and Number:
  - 1. For convenience and uniformity, parties to the Contract, including the City, Contractor, and DEN Project Manager, and their subcontractors, suppliers, installers, consultants or other interested parties are referred to throughout the Contract Documents as if masculine in gender and singular in number. Such reference is not intended to limit the meaning of the Contract Documents to the masculine gender or singular number.
- D. Singular vs. Plural:
  - 1. Materials, products, equipment, or other items of work referred to in the singular shall be construed as plural where applicable by the intent of the Contract Documents and shall not limit quantities to be provided by the Contractor.
- E. Imperative Mood:
  - 1. Specifications and notes on the drawings or elsewhere in the Contract Documents are generally written in the imperative mood as instructions to the Contractor, whether the Contractor is specifically addressed or not.
- F. References to Subcontractors or Trades
  - 1. References to subcontractors, trades or other entities, which are not parties to the Contract, shall be construed as meaning the Contractor whose responsibility it shall be to divide the Work among subcontractors or trades. Such references are used as a matter of convention, and are not intended to preclude or direct the Contractor's responsibility to divide the Work.
- G. Abbreviations
  - 1. A list of abbreviations used in the Contract Documents is included in Technical Specifications Section 014220 "Abbreviations and Symbols"; an abridged list of abbreviations used on the drawings is included with the drawings.
  - 2. Abbreviations are believed to be those in general use in the construction industry. Contact the DEN Project Manager for clarification of abbreviations for which the meaning is not clear.
- PART 2 PRODUCTS (NOT USED)
- PART 3 EXECUTION (NOT USED)

## PART 4 - MEASUREMENT

#### 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

#### **PART 5 - PAYMENT**

### 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

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# **SECTION 014320**

## DEN QUALITY ASSURANCE FOR FAA FUNDED PROJECTS

## PART 1 - GENERAL

## 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Refer to Title 17 Inspection and Defects in the General Contract Conditions, 2011 Edition.
- C. ASTM standard practices and specifications testing including, but not limited to, the following:
  - 1. ASTM C 1077: Standard Practices for Laboratory Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation
  - 2. ASTM D 3666: Road & Paving Materials
  - 3. ASTM D 3740: Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
  - 4. ASTM E 329: Inspection and Testing Agencies for Concrete, Steel and Bituminous Materials as Used in Construction
  - 5. ASTM E 543: Determining the Qualifications of Nondestructive Testing Agencies.
- D. Other:
  - 1. Standard testing practices for other disciplines.

#### 1.02 SUMMARY

A. This Section identifies Denver International Airport (DEN) inspection activities to be performed by inspectors employed by DEN and working under the direction of the DEN Project Manager.

## 1.03 QUALITY ASSURANCE

- A. Inspection and tests, conducted by persons or agencies, including DEN, other than the Contractor, shall not in any way relieve the Contractor of the Contractor's responsibility and obligation to meet all requirements of Contract Documents and the referenced standards.
- B. The inspection and approval of Work by other agencies above does not constitute inspection or acceptance of Work required by DEN. The Contract Documents may contain requirements more stringent than Denver Building Inspection Division or other code agency requirements. The City will perform all acceptance testing.
- C. The Contractor will employ the services of a Material Testing Agency in conformance with Section 014525 "Material Testing Agency" to perform acceptance testing on all earthwork and earthwork related work items. DEN Quality Assurance (QA) program will monitor all tests performed by the Contractor's Material Testing Agency and must be present on site during all acceptance testing and inspections.
- D. The City may employ the services of a Testing Agency (TA), which will perform all acceptance testing.

 TECHNICAL SPECIFICATIONS
 DENVER INTERNATIONAL AIRPORT

 DIVISION 01 – GENERAL REQUIREMENTS
 RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2

 SECTION 014320 - DEN QUALITY ASSURANCE FOR FAA FUNDED PROJECTS
 CONTRACT NO. 202476290

- E. Laboratory and field-testing requirements to be conducted by the TA for materials and construction on this project are included in the appropriate Contract Documents. Where the Contract Documents reference the CDOT Standard Specifications for Road and Bridge Construction, the references shall also mean CDOT Field Materials Manual for schedule of tests unless otherwise stated. As a minimum, the TA described in this Section shall perform all applicable tests including the sampling and acceptance testing. In the event of such a conflict between the schedule and a specification in the Contract Documents, the more comprehensive testing shall govern unless otherwise noted.
- F. Inspections and tests conducted by the TA shall not in any way relieve the Contractor of the Contractor's responsibility and obligation to meet the requirements of all Contract Documents and referenced standards. Employment of the City's TA does not relieve the Contractor of providing the required Quality Control program.
- G. When inspections or tests by the TA prove that the item or material does not meet all applicable specifications and requirements, the cost incurred for the re-testing or re-inspection shall be borne by the Contractor.
- H. Samples will only be considered if taken at random.
- I. The Contractor is obligated to correct any item deemed deficient at no additional cost to the City.
- PART 2 PRODUCTS (NOT USED)
- PART 3 EXECUTION (NOT USED)

#### PART 4 - MEASUREMENT

#### 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

## PART 5 - PAYMENT

#### 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

## **SECTION 014520**

### CONTRACTOR QUALITY CONTROL PROGRAM – FAA

#### PART 1 - GENERAL

#### 1.01 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.

#### 1.02 SUMMARY

A. The Contractor shall establish, provide and maintain an effective Quality Control Program that details the methods and procedures that will be taken to ensure that all materials and completed construction required by this Contract conform to Contract Documents and any other requirements, whether manufactured by the Contractor or procured from subcontractors or vendors. Although guidelines are established and certain minimum requirements are specified herein and elsewhere in the Contract Documents, the Contractor shall assume full responsibility for accomplishing the stated purpose.

## 1.03 LEVEL OF CONTROL

- A. The intent of this Section is to explain the Contractor's need to establish a necessary level of control that will:
  - 1. Adequately provide for the production of acceptable quality materials.
  - 2. Manager that the Contract requirements are being met.
  - 3. Allow the Contractor as much latitude as possible to develop the Contractor's own standards of control.

#### 1.04 REQUIREMENTS

- A. The Contractor shall be prepared to discuss at the Preconstruction Conference, the Contractor's understanding of the quality control requirements. A written Quality Control Plan shall be submitted to the DEN Project Manager no later than ten (10) days after the Notice to Proceed. The Contractor shall not begin any construction, production or off-site fabrication of materials to be incorporated into the completed work until the Quality Control Plan has been reviewed and approved by the DEN Project Manager. No partial payment will be made for work or materials subject to specific quality control requirements until the Quality Control Plan has been reviewed and approved by the DEN Project Manager.
- B. The quality control requirements contained in this Section and elsewhere in the Contract Documents are in addition to and separate from the acceptance testing requirements. Certain acceptance testing requirements as noted in the specifications are also the responsibility of the Contractor.

PART 2 - PRODUCTS (NOT USED)

#### **PART 3 - EXECUTION**

## 3.01 QUALITY CONTROL PROGRAM

| TECHNICAL SPECIFICATIONS                                  | DENVER INTERNATIONAL AIRPORT               |
|---|--|
| DIVISION 01 – GENERAL REQUIREMENTS                        | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| SECTION 014520 - CONTRACTOR QUALITY CONTROL PROGRAM - FAA | CONTRACT NO. 202476290                     |

- A. General Description: The Contractor shall establish a Quality Control Program to perform inspection and testing of all items of Work required by the Contract Documents, including those performed by subcontractors. This Quality Control Program shall ensure conformance to applicable specifications and plans with respect to materials, workmanship, construction, finish, and functional performance. The Quality Control Program shall be effective for control of all construction work performed under this Contract and shall specifically include surveillance and tests required by the Contract Documents in addition to other requirements of this section and any other activities deemed necessary by the Contractor to establish an effective level of quality control.
- B. Quality Control Plan: The following Quality Control Plan shall be submitted within ten (10) days of receiving the Administrative Notice to Proceed (NTP) in a MS Word or MS Excel format that can easily be incorporated into the FAA Construction Management Plan. The Contractor shall describe the Quality Control Program in a written plan. The Quality Control Plan shall provide a general description of minimum quality control monitoring required to be performed for each specification division until Final Acceptance by DEN.
  - The Quality Control Plan shall address and establish controls and documentation to ensure that only items or materials that have been accepted through successful inspection are used or installed. Identification and traceability of construction materials shall be provided throughout all inspections, test activities and records. For stored items, provisions shall be made for the control of the item/material identification, consistent with the expected duration and type of storage.
  - 2. The Quality Control Plan shall describe the methodology of monitoring, testing and exercising of all equipment, valves and/or assemblies to ensure the Work installed is in proper working order.
  - 3. In addition, the Quality Control Plan shall be organized to address, as a minimum, the following items:
    - a. Quality control organization and personnel.
    - b. Inspection requirements.
    - c. Quality control testing plan.
    - d. Documentation of quality control activities.
    - e. Requirements for corrective action when quality control and/or acceptance criteria are not met.
    - f. Testing Agencies Certifications, personnel certifications, equipment lists, test forms, report samples and forms, frequency of tests, specification references, and specification standards.
    - g. Acceptance tests required and methods of quality control for each activity included in the Contract Documents.
  - 4. The Contractor is encouraged to add any additional elements to the Quality Control Plan that he/she deems necessary to adequately control all production and/or construction processes required by this Contract.

## 3.02 QUALITY CONTROL ORGANIZATION

- A. The Contractor's Quality Control Program shall be implemented by the establishment of a separate quality control organization. An organizational chart shall be developed to show all quality control personnel and how these personnel integrate with other management/production and construction functions and personnel.
  - 1. The organizational chart shall identify all quality control staff by name and function and shall indicate the total staff required to implement all elements of the Quality Control Program, including inspection and testing for each item or work. If necessary, different technicians can be utilized for specific inspection and testing functions for

different items of work. All personnel used for implementation of all or part of the Quality Control Program shall be subject to the qualification requirements of this Section. The organizational chart shall indicate which personnel are Contractor employees and which are provided by an outside organization.

- B. The quality control organization shall consist of the following minimum personnel:
  - 1. Quality Control Manager:
    - a. The Quality Control Program shall be administrated by a Quality Control Manager. The Quality Control Manager shall be a full-time employee of the Contractor or a consultant engaged by the Contractor. The Quality Control Manager shall have a minimum of five (5) years of experience in airport and/or highway construction and shall have had prior quality control experience on a project of comparable size and scope as this Contract.
    - b. Additional qualifications for the Quality Control Manager shall include the following requirements:
      - 1) A licensed professional engineer with a minimum of five (5) years of airport or highway grading and drainage paving, field and laboratory testing, and quality control experience acceptable to the DEN Project Manager, or,
      - 2) A technician certified at Level III or IV by the National Institute for Certification in Engineering Technologies (NICET) for Construction Materials, Highway Materials, Highway Construction or five (5) years of highway and/or airport paving experience in all fields of work included in the scope of work and acceptable to the DEN Project Manager.
      - 3) Submit the following documentation to the DEN Project Manager for review:
        - a) A current resume including the individual's experience and qualifications.
        - b) Copy of current PE registration and/or all applicable certifications.
        - c) Four (4) references for work on projects completed within past five (5) years, including names, current organization, and telephone numbers.
    - c. The Quality Control Manager shall have full authority to institute any and all actions necessary for the successful implementation of the Quality Control Program to ensure compliance with the Contract Documents. The Quality Control Manager shall report directly to a responsible officer of the construction firm. The Quality Control Manager shall be on-site for a minimum of forty (40) hours per week during all production and shall be released from full-time duties only after written permission from the DEN Project Manager.
  - 2. Electrical Quality Control Manager: Depending on the project's scope of work, the Contractor shall provide a dedicated, full-time Electrical Quality Control Manager. The Electrical Quality Control Manager shall have no other responsibilities other than overall electrical quality control. The Electrical Quality Control Manager shall be a master electrician with a minimum of five (5) years electrical airfield construction experience at a commercial carrier airport. The Electrical Quality Control Manager shall be a Certified Senior Technician.
    - a. The Quality Control personnel:
      - 1) Shall be familiar with and prove proficiency in all aspects of inspections and testing he/she is supervising.
      - 2) Shall not perform any testing or inspection he/she is not certified to perform.
      - 3) Shall be subject to the approval of DEN Project Manager.
      - 4) Shall not report or be part of the production team on the Project.
  - 3. Quality Control Inspection Technicians: A sufficient number of Quality Control Inspection Technicians necessary to adequately implement the Quality Control Program shall be provided by the Contractor. The Quality Control Inspection Technicians shall have the authority to bring the Work into conformance with Contract requirements including stopping non-conforming work in progress. A document

signed by an officer of the Contractor shall convey and acknowledge the Inspector's authority. Inspection personnel shall be engineers, engineering technicians, or experienced craftsman with the following qualifications:

- a. Engineer-in-training with minimum two (2) years of airport/highway grading experience acceptable to the DEN Project Manager.
- b. An individual with 3 years of highway and/or airport grading experience acceptable to the DEN Project Manager, with a Bachelor of Science degree in Civil Engineering, Civil Engineering. Technology or Construction.
- c. The Quality Control personnel:
  - 1) Shall be familiar and prove proficiency in all aspects of inspections and testing he or she is supervising.
  - 2) Shall not perform any inspection he/she is not certified to perform.
  - 3) Shall be subject to the approval of DEN Project Manager.
  - 4) Shall not report or be part of the production team on the Project.
- d. The Quality Control Inspection Technicians shall report directly to the Quality Control Manager and shall perform the following functions:
  - Inspection of all materials, construction, plant and equipment for conformance to the Technical Specifications, and as required by Article 3.3 below
  - 2) Performance of all quality control tests as required by the Technical Specifications and Article 3.4 of this Section.
- C. If the DEN Project Manager determines that the Quality Control Manager or any of the Quality Control Manager's authorized support personnel are not effectively enforcing or performing the Quality Control requirements specified in the Contract, the DEN Project Manager will, in writing, require the Contractor to remove and replace such personnel from the Project at no cost to the City. No further work will be performed by the Contractor until an acceptable replacement for the replaced personnel is approved by the DEN Project Manager.
- D. Staffing Levels: The Contractor shall provide sufficient qualified quality control 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 testing 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 Quality Control Plan shall state where different technicians will be required for different work elements. Should the DEN Project Manager determine that staffing levels are not sufficient to ensure compliance with the Quality Control Plan and Contract Documents, the Quality Control Manager shall take steps to bring staffing levels to an acceptable level.
- E. Suppliers and Subcontractors: The Quality Control Plan shall include a list of suppliers and subcontractors. The list shall include items to be supplied by each supplier and/or subcontractor and shall identify work to be performed by each subcontractor. The list shall be updated and submitted as required.
- F. Emergency Contact Information: Provide the name, company, title, work phone number, home phone number, and other means of contact for at least four (4) individuals. The individuals can be associated with production and/or quality control. The Emergency Contact list shall be revised in the event there is any change in any of the information and forwarded to the DEN Project Manager and DEN Maintenance Control (303-342-2800). The Emergency Contact list shall also include the project number, title and date of issue.

## 3.03 INSPECTION REQUIREMENTS.

A. The Contractor shall utilize the following six-point inspection plan to ensure the conformance of the Work performed by the Contractor meets the requirements of the

| TECHNICAL SPECIFICATIONS                                  | DENVER INTERNATIONAL AIRPORT               |
|---|--|
| DIVISION 01 – GENERAL REQUIREMENTS                        | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| SECTION 014520 - CONTRACTOR QUALITY CONTROL PROGRAM - FAA | CONTRACT NO. 202476290                     |

Contract Documents, the referenced codes and standards and the approved submittals:

- Prework coordination: Prior to the start of construction work on the Contract and prior 1 to the start of work under each separate specification section and prior to the start of work where a change in a construction operation is contemplated by the Contractor and prior to a new subcontractor starting work, a coordination meeting will be held with the Contractor's Quality Control Manager, Project Manager, Superintendent, Foreman, Safety representative, Quality Control Inspector(s), MTA representative, and the DEN Project Manager, DEN Inspector(s), and DEN Quality Assurance Laboratory representative. Supervisory, Safety, and Quality Control representatives of all applicable subcontractors will also attend. The Contractor's Quality Control Manager will chair the meeting and shall distribute the proposed meeting agenda 48 hours prior to the meeting. Upon completion of the meeting, minutes including any revisions to the agenda shall be distributed within twenty-four (24) hours.
- The purpose of the coordination meeting is to ensure that the Contractor's personnel 2. have no misunderstandings regarding their safety and quality procedures as well as the technical requirements of the Contract. The following items shall be submitted to the DEN Project Manager no less than seventy-two (72) hours prior to the meeting and shall be presented and reviewed by the Contractor at the meeting held no less than forty-eight (48) hours prior to start of work:
  - Contract requirements and specifications. a.
  - b. Shop drawings, certifications, submittals and as-built drawings that apply.
  - C. Testing and inspection program and procedures.
  - Contractor's Quality Control Program. d.
  - e. Familiarity and proficiency of the Contractor's and subcontractor's workforce to perform the operation to required workmanship standards including certifications of installers.
  - f. Safety and environmental precautions to be observed.
  - Any other preparatory steps dependent upon the particular operation. g.
  - h. The Contractor's means and methods for performing the Work.
- 3. Initial Inspection: Upon completion of a representative sample of a given feature of the Work and no later than two (2) weeks after the start of a new or changed operation, the DEN Project Manager or the DEN Project Manager's designated representative will meet with the Contractor's Quality Control representative and applicable subcontractor's supervisor and their Quality Control representatives to check the following items, as a minimum:
  - Workmanship to established quality standards. a.
  - Conformance to Contract Documents and the accepted shop drawings. b.
  - C. Adequacy of materials and articles utilized.
  - d. Results of inspection and testing methods.
  - Adequacy of as-built drawings maintained daily. e.
  - f. Once accepted, the representative sample will become the physical baseline by which ongoing work is compared for quality and acceptability. To the maximum practical extent, approved representative samples of work elements shall remain visible until all work in the appropriate category is complete. Acceptance of a sample does not waive or alter any Contract requirements or show acceptance of any deviation from the Contract not approved in writing by the DEN Project Manager. The Contractor's Quality Control representative shall chair, prepare and distribute minutes of Quality Control meetings. Meeting minutes shall be distributed within twenty-four (24) hours of the meeting.
- Follow-up Inspection: The Contractor's Quality Control representative will monitor the 4. Work to review the continuing conformance of the Work to the workmanship standards established during the preparatory and initial inspections.

| TECHNICAL SPECIFICATIONS                                  | DENVER INTERNATIONAL AIRPORT               |
|---|--|
| DIVISION 01 – GENERAL REQUIREMENTS                        | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| SECTION 014520 - CONTRACTOR QUALITY CONTROL PROGRAM - FAA | CONTRACT NO. 202476290                     |

- 5. Completion Inspection: Forty-eight (48) hours prior to the completion of an item or segment of work and prior to covering up any work, the Contractor will notify the DEN Project Manager who will verify that the segment of work is substantially complete, all inspections and tests have been completed and the results are acceptable. The purpose of this inspection is to allow further corrective work upon, or integral to, the completed segment of work. THIS IS NOT AN ACCEPTANCE INSPECTION. If any items are determined to be deficient, need correction or are non-conforming, a deficiency list will be prepared and issued to the respective Contractor for correction, repair or replacement of any deficient or non-conforming items. The DEN Project Manager and Contractor's Quality Control representative will verify the correction of the deficient and/or non-conforming items prior to the start of the next operation.
- Pre-Final Acceptance Inspection: Prior to requesting a Pre-final Acceptance 6. Inspection by DEN, all work and operational systems to be inspected shall be satisfactorily completed and tested by the Contractor. The Contractor's written request for this inspection shall be made seventy-two (72) hours in advance. With the request shall come a list of any known deficiencies (punch list) and the time frame in which they will be corrected. If the list is too large or contains too many significant items, in the opinion of the DEN Project Manager, no inspection will be held due to the incompleteness of the Work.
  - a. The DEN Project Manager will schedule the Pre-final Acceptance Inspection and will add to the punch list deficient items discovered during the inspection. If during the inspection the list becomes too large or too many significant items are on the list, the inspection will be canceled. After the inspection is completed, the deficiency list will be transmitted to the Contractor for correction of the deficient items.
- 7. Final Acceptance Inspection: After the Contractor has completed all items on the deficiency list (generated from the Pre-final Acceptance Inspection) he/she shall request a Final Acceptance Inspection. The request shall be made in writing at least seventy-two (72) hours in advance of the inspection. All areas must be cleaned and ready for turnover prior to this inspection. The DEN Project Manager, the design consultant, a representative of the funding agency, if applicable, and other interested parties will inspect the subject Work to ensure that all deficiencies have been satisfactorily attended to and that no new deficiencies have appeared and that all systems are completely functional. Any outstanding or additional deficient items will be noted and handled per the requirements of the Pre-final Acceptance Inspection noted above until the Work is acceptable to the DEN Project Manager.

#### 3.04 QUALITY CONTROL TESTING PLAN.

- As a part of the overall Quality Control Program, the Contractor shall implement a Quality Α. Control Testing Plan as required by the specifications. The testing plan shall include the minimum tests and test frequencies required by each item in the Contract Documents as well as any additional quality control tests that the Contractor deems necessary to adequately control production and/or construction processes.
- Β. The testing plan can be developed in a spreadsheet fashion and shall, as a minimum. include the following:
  - 1. Specification item number (e.g., P-401).
  - 2. Item description (e.g., Plan Mix Bituminous Pavements).
  - 3. Test type (e.g., gradation, grade, asphalt content).
  - 4. Test standard (e.g., ASTM or AASHTO test number, as applicable).
  - 5. Test frequency (e.g., as required by specifications or minimum frequency when requirements are not stated).

TECHNICAL SPECIFICATIONSDENVER INTERNATIONAL AIRPORTDIVISION 01 – GENERAL REQUIREMENTSRUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2SECTION 014520 - CONTRACTOR QUALITY CONTROL PROGRAM - FAACONTRACT NO. 202476290

- 6. Responsibility (e.g., plant technician).
- 7. Control requirements (e.g., target, permissible deviations).
- C. The testing plan shall contain a statistically based procedure of random sampling for acquiring test samples in accordance with ASTM D 3665. The DEN Project Manager shall be provided the opportunity to witness quality control sampling and testing.
- D. All quality control test results shall be documented by the Contractor as required by this Section.

#### 3.05 DOCUMENTATION.

- A. The Contractor shall maintain current quality control records of all inspections and tests performed. These records shall include factual evidence that the required 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.
- B. 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 DEN Project Manager daily. The records shall cover all work placed subsequent to the previously furnished records and shall be verified and signed by the Contractor's Program Manager.
- C. Specific Contractor quality control records required for the Contract shall include, but are not necessarily limited to, the following records:
  - 1. Certificates of compliance shall be submitted minimum thirty (30) days prior to the product's incorporation into the Work.
  - 2. Quality Control Charts for materials shall be established as required by the individual specification sections.
  - Daily Foreman Report: The Foreman shall report daily construction activities using the Daily Foreman Report form QCP-1 as included in Specification Section 019990 "Standard Forms". The reports shall be completed in their entirety and shall as a minimum include the following:
    - a. Daily activities.
    - b. Quantities of material placed and completed.
    - c. Weather.
    - d. Safety issues.
    - e. Personnel.
    - f. Equipment on site with time used.
    - g. Equipment under repair.
    - h. Work delays.
    - i. Possible delays.
    - j. Materials delivered.
    - k. The reports shall be signed by the responsible foreman and Contractor Superintendent. The DEN Project Manager shall be provided a copy of each daily construction report on the work day following the day of record.
  - 4. Daily Quality Control Inspection Reports: Each Contractor Quality Control Inspection Technician shall maintain a daily log of all inspections performed for both Contractor and subcontractor operations on forms QCP-2 and QCP-2-2 included in Section

019990 "Standard Forms". The reports shall be completed in their entirety, shall provide factual evidence that continuous quality control inspections have been performed and shall, as a minimum, include the following:

- a. Technical Specification item number and description.
- b. Compliance with approved submittals.
- c. Proper storage of materials and equipment.
- d. Adherence to plans and specifications.
- e. Review of quality control tests.
- f. Compliance of quality control testing frequencies.
- g. Identify inspections conducted, results of inspections, location and nature of defects found, causes for rejection, remedial or corrective actions taken or proposed.
- h. The reports shall be signed by the responsible Quality Control Inspection Technician and the Program Manager. The DEN Project Manager shall be provided a copy of each report on the workday following the day of record.
- 5. Test Reports: The Contractor shall be responsible for establishing a system which will record all quality control test results. Daily test reports shall document the following information:
  - a. Technical Specification item number and description.
  - b. Test designation.
  - c. Location.
  - d. Date of test.
  - e. Control requirements.
  - f. Test results.
  - g. Causes for rejection.
  - h. Recommended remedial actions.
  - i. Retests.
  - j. Fresh concrete properties tests and in-place moisture-density tests shall be reported in legible draft form to the DEN Inspector immediately at the test site. Any failing test shall be reported separately to a DEN Inspector or the DEN Project Manager within two (2) hours after the discovery.
  - k. Test results from each day's work period shall be transmitted to the DEN Project Manager on the next work day. These initial daily test reports shall be signed by the responsible Quality Control Technician and the Program Manager.
  - I. Typed final laboratory and field tests shall be provided to the DEN Project Manager as specified in paragraph 3.5.D "Weekly Summary Reports" below.
- D. Weekly Summary Reports:
  - 1. Typed final laboratory and field test reports summarizing the activities and results for the quality control tests and inspections for each week shall be prepared by the ITA and submitted to the DEN Project Manager. The weekly summary report shall meet the requirements of Section 014525 "Material Testing Agency" and be submitted within two (2) weeks from the end of the reporting period. At a minimum, the weekly summary report shall identify all test types, test locations, testers, test results, worksheets showing all calculations used, specifications, whether the test passed or failed, quantity of materials placed and the number of tests performed for each material, the material supplier, installer, and Contractor. Retests shall be identified in a fashion that easily correlates to the failing test. Any failed tests that have not been corrected when the report is published shall be highlighted and noted in the cover letter of the report. A current Correction Action Report (CAR) log shall also be included in the weekly summary report.

TECHNICAL SPECIFICATIONSDENVER INTERNATIONAL AIRPORTDIVISION 01 – GENERAL REQUIREMENTSRUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2SECTION 014520 - CONTRACTOR QUALITY CONTROL PROGRAM - FAACONTRACT NO. 202476290

### 3.06 CORRECTIVE ACTION REQUIREMENTS

- A. The Quality Control Plan 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 under control. The requirements for corrective action shall include both general requirements for operation of the Quality Control Program as a whole, and for individual items of work contained in the specifications.
- B. The Quality Control Plan shall detail how the results of quality control inspections and tests will be used for determining the need for corrective action and shall contain clear sets of rules to gauge when a process is out of control and the type of correction to be taken to regain process control.
- C. When applicable or required by the specifications, the Contractor shall establish and utilize statistical quality control charts for individual quality control tests. The requirements for corrective action shall be linked to the control charts.

## 3.07 SURVEILLANCE BY THE DEN PROJECT MANAGER

- A. All items of material and equipment shall be subject to surveillance by the DEN Project Manager at the point of production, manufacture or shipment to determine if the Contractor, producer, manufacturer or shipper maintains an adequate quality control system in conformance with the requirements detailed herein and the applicable Contract Documents. In addition, all items of materials, equipment and work in place shall be subject to surveillance by the DEN Project Manager at the site for the same purpose.
- B. Surveillance by the DEN Project Manager does not relieve the Contractor of performing quality control inspections of either on-site or off-site Contractor's or subcontractor's work.

#### 3.08 NONCOMPLIANCE

- A. The DEN Project Manager will notify the Contractor of any noncompliance with any of the foregoing requirements. The Contractor shall, after receipt of such notice, immediately take corrective action. Any notice, when delivered by the DEN Project Manager or the DEN Project Manager's authorized representative to the Contractor or the Contractor's authorized representative at the site of the work, shall be considered sufficient notice.
- B. In cases where quality control activities do not comply with either the Contractor's Quality Control Program or the Contract provisions, or where the Contractor fails to properly operate and maintain an effective Quality Control Program, as determined by the DEN Project Manager, the DEN Project Manager may:
  - 1. Order the Contractor to replace ineffective or unqualified quality control personnel or subcontractors
  - 2. Order the Contractor to stop operations until appropriate corrective actions are taken.

#### PART 4 - MEASUREMENT

#### 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

#### PART 5 - PAYMENT

#### 5.01 METHOD OF PAYMENT

TECHNICAL SPECIFICATIONSDENVER INTERNATIONAL AIRPORTDIVISION 01 – GENERAL REQUIREMENTSRUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2SECTION 014520 - CONTRACTOR QUALITY CONTROL PROGRAM - FAACONTRACT NO. 202476290

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

# **SECTION 014525**

## MATERIAL TESTING AGENCY

## PART 1 - GENERAL

### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. The Contractor shall employ the services of a Material Testing Agency; hereafter referred to as the Contractor Testing Agency (CTA). This Section identifies the requirements for the Contractor to employ a Material Testing Agency and identifies the required activities of the Material Testing Agency.
- B. Laboratory and field-testing requirements to be conducted by the CTA for materials and construction methods used on this project are included in the appropriate technical specifications. Where the Specifications reference the CDOT Standard Specifications for Road and Bridge Construction, the references shall also mean CDOT Field Materials Manual for schedule of tests unless otherwise stated. As a minimum, the CTA described in this Section shall perform all applicable tests listed in the manual including the independent assurance sampling and testing. In the event of such a conflict between the schedule and a specification in these technical provisions, the more comprehensive testing shall govern unless otherwise noted.
- C. Inspections and tests conducted by the CTA shall not in any way relieve the Contractor of the Contractor's responsibility and obligation to meet all specifications and referenced standards. Employment of the CTA does not relieve the Contractor of providing the required Quality Control program.
- D. When inspections or tests by the CTA prove that the item or material does not meet all applicable specifications and requirements, the cost incurred for the re-testing or re-inspection shall be borne by the Contractor as per this Section.
- E. Samples will only be considered if taken at random. The Contractor shall permit representatives of the City to witness the selection of samples. Inspection or tests of items or materials that fail shall be sufficient cause to terminate further inspections/tests of the same brand, make or source of that product.
- F. The Contractor is obligated to correct any item deemed deficient at no additional cost to DEN.

#### 1.03 SUBMITTALS

A. All submittals shall comply with requirements of Sections 013300 "Submittal Procedures" and 013325 "Shop and Working Drawings, Product Data and Samples" for submittal requirements.

## 1.04 CONTRACTOR SUBMITTAL OF PROPOSED TESTING AGENCIES

A. The Contractor shall employ the services of a CTA that has been accredited by AASHTO or CCRL or an approved equal to perform the tests required in the Contract. The CTA may also provide technicians to perform the required inspections. However, inspection and

testing cannot be performed simultaneously by the same technician. The Contractor shall receive written acceptance from the DEN Project Manager of the CTA prior to any permanent work being installed or tested.

- B. The Contractor shall not submit for acceptance to the DEN Project Manager any testing agency or laboratory utilized in the design or construction document preparation or presently employed by DEN as part of DEN Quality Assurance, Material Testing, or special inspection agencies.
- C. For consideration of acceptance, the Contractor shall submit to the DEN Project Manager the following items received from the CTA:
  - 1. Affidavit of current accreditation from a national certification and/or accreditation program(s).
  - 2. Evidence that the CTA Laboratory is accredited to perform the testing required in the Contract Documents.
  - 3. Resumes and evidence of professional engineer registration and licensing in the State of Colorado for the personnel reviewing and signing test reports.
  - 4. Resumes and current certifications verifying that CTA management and supervisory personnel, laboratory staff, field testing technicians, and inspecting technicians are qualified in accordance with ASTM C 1077, D 3666, D 3740, and E 329 requirements to perform the Work. NICET, ACI, WAQTC, LabCAT, CDOT, NRMCA, PCA, AWS, ASNT certifications or a degree in a related engineering field with construction field experience that can demonstrate qualifications. A list summarizing all management, supervisory, laboratory, field testing, and inspection personnel assigned to the Project including the testing and/or inspection each individual will be performing, certifications held by each individual, and the expiration date of each certification.
  - 5. A matrix indicating each technical specification section, paragraph, quantity and type of sampling and/or testing required.
  - 6. Copies of all laboratory, field testing, and inspection report forms.

## 1.05 SUBMITTAL OF REPORTS

- A. Test results shall be submitted by the Contractor to the DEN Project Manager after completion of inspections/tests by the CTA and prior to incorporation of the items into the Work unless the test or inspection must be done during or after installation.
- B. All field test results including but not limited to fresh concrete properties and in-place moisture-density shall be reported in legible draft form to the DEN Inspector immediately at the test site. Any failing test shall be reported separately to the DEN Inspector or DEN Project Manager. The draft test results shall also be attached to the Daily Quality Control Inspection Report (reference Section 014510 "Contractor Quality Control") and transmitted to the DEN Project Manager the next workday.
- C. Typed test reports shall be provided to the DEN Project Manager as specified in the "Weekly Reports" Article in this Section. The test reports shall be numbered sequentially in chronological order. Individual tests shall be numbered sequentially. The reports and tests shall also be organized per specification section. All test results must be reviewed and signed by a registered licensed engineer in the State of Colorado. The signature represents that the test procedures used are in strict conformance with the applicable testing standard, the calculated data are true and accurate, the tools and equipment used were in calibration, the sample was not contaminated and the persons running the test were qualified.
- D. Reports of inspections and test activities are record documents and shall be maintained in a manner that provides integrity of item identification, acceptability, and traceability. Reports

shall identify the following:

- 1. Contractor's name.
- 2. DEN Contract number and title.
- 3. Material Testing Agency name.
- 4. Name of items inspected/tested including a physical description and, as applicable, model and make.
- 5. Quantity of items.
- 6. Inspection/test procedure used. If national standards are used, any deviation from these standards.
- 7. Date the sample was taken and the date the test was made.
- E. Location (by coordinates, building grid or station number and elevation) of where tests and/or samplings were performed including environmental condition where applicable. Include plan drawing indicating location of test, lot size and location and work item sampled or tested.
  - 1. Name of inspector/tester.
  - 2. In the event the testing or sampling is a re-test or re-sampling, reference the previous respective testing or sampling report.
  - 3. Specified requirements in the Contract that the item must meet. Include reference to technical specification section and paragraphs.
  - 4. Acceptability.
  - 5. Deviations/nonconformance.
  - 6. Evaluation of results.
  - 7. All information required for the specific test as specified in the applicable ASTM standard.
  - 8. Signature of authorized evaluator.

#### 1.06 WEEKLY SUMMARY REPORTS

- A. The CTA and Quality Control Manager shall prepare and submit to the DEN Project Manager a weekly summary report each week, which summarizes by specification section all work activities and results for the quality control tests and inspections conducted during that period. The weekly summary report shall be submitted within two (2) weeks from the end of the reporting period. At a minimum, the weekly summary report shall identify all inspections, test types, test locations, testers, test results, specifications, whether the test passed or failed, quantity of materials placed and the number of tests performed for each material, and the material supplier, installer and Contractor. Re-tests shall be identified in a fashion that easily correlates to the failing test. Any failed tests that have not been corrected when the report is published shall be highlighted and noted in the cover letter of the report.
- B. The weekly report shall be submitted per Sections 013300 requirements.

## PART 2 - PRODUCTS (NOT USED)

## PART 3 - EXECUTION

## 3.01 REMOVAL OF NONCONFORMING MATERIAL

| A.           | The Contractor | is obligated to correct | or remove nonconforming | materials, whether in place |
|--------------|----------------|-------------------------|-------------------------|-----------------------------|
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| 20 DEC 2024  |                | 01                      | 4525 - 3                |                             |

or not. If necessary, the DEN Project Manager will send written notification to the Contractor to correct or remove the defective materials from the project. If the Contractor fails to respond, the DEN Project Manager may order correction, removal, and/or replacement of defective materials by others, in which case the Contractor shall bear all costs incurred related to correcting, removing, and/or replacing the defective materials.

## 3.02 PERFORMANCE

A. If the DEN Project Manager determines that the CTA or its personnel are not effectively enforcing or performing the testing and documentation requirements specified in the Contract, the DEN Project Manager will require, in writing, the Contractor to remove and replace the CTA or such personnel at no cost to DEN.

## 3.03 CONTROL OF MEASURING AND TEST EQUIPMENT

A. The CTA shall select measuring and test equipment in such a manner as to provide proper type, range, accuracy, calibration, and tolerance for determining compliance with specified requirements. Measuring and test devices shall be calibrated, adjusted and maintained at prescribed intervals prior to use based upon equipment stability and other conditions affecting measurement. Provisions shall be made for the proper handling and storage of equipment. Calibration shall be accomplished using certified standards that have a known traceable relationship to the National Institute of Standards and Technology. Every calibrated measuring and test device shall show the current status, date of last calibration and the due date for the next calibration. Calibration records shall be maintained onsite as quality records and shall be made available for inspection upon the DEN Project Manager's request.

## PART 4 - MEASUREMENT

## 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

## PART 5 - PAYMENT

#### 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

# SECTION 014545

## SPECIAL INSPECTION AGENCY AND OWNER TESTING AGENCIES

## PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Verify if adopted codes below are current at time of Project.
- C. Special Inspection Statement issued as part of the application for building permit for the specific task or project.

#### 1.02 SUMMARY

- A. The City will employ the services of Special Inspection Agencies (SIA). This Section identifies the requirements for the Contractor to coordinate, facilitate, and support DEN and its agents and consultants to fulfill the requirements of Special Inspection.
  - 1. Any additional tests deemed necessary by the Building Official, Engineer of Record, Special Inspector or DEN Project Manager to assure these agencies that all material and work on the Project meet the requirements of the Contract and all applicable codes and regulations.
  - 2. Minimum Laboratory and field testing requirements to be conducted by the SIA for materials and construction on this Project are included in the Table at the end of this Section.
  - 3. All caissons and piers drilling on this Project shall be continuously inspected by the SIA hired by DEN directly or through the Engineer of Record or its sub-consultants.
  - 4. The Contractor shall not perform any work that could cover work or material that has not passed a special inspection or that requires the presence of the special inspector to meet the requirements of continuous or periodic inspection.
  - 5. It is the responsibility of the Contractor to plan and coordinate all testing requirements on the project to assure no delays are occurring due to the lack of inspection or testing.
  - 6. The Contractor must allow sufficient time in the schedule to perform all required inspection and testing.
  - 7. All rework due to nonconformance, failing tests or rework to test covered work prior to proper inspection and testing shall be borne by the Contractor.
  - 8. All re-inspections and re-testing costs due to non-conformances or failing tests or revisiting to test covered or incomplete work shall be borne by the Contractor at a cost of \$100 per hour in addition to all direct and indirect costs associated with testing.
  - 9. Periodic welding inspection shall include the minimum of fitting inspection and final inspection at all times.
  - 10. Inspections and tests conducted by the SIA shall not relieve in any way the Contractor of the Contractor's responsibility and obligation to meet all specifications and referenced standards. Employment of the SIA does not relieve the Contractor of providing the required Quality Control program.

- 11. When inspections or tests by the SIA prove that the item or material does not meet all applicable specifications and requirements, the cost incurred for the re-testing or re-inspection shall be borne by the Contractor. Reference Article 5.1 of this Section.
- 12. Samples will only be considered if taken at random. The Contractor shall permit representatives of the City to witness the selection of samples. Inspection or tests of items or materials that fail shall be sufficient cause to terminate further inspections/tests of the same brand, make or source of that product.
- 13. The Contractor is obligated to correct any item deemed deficient at no additional cost to DEN.

# 1.03 SUBMITTALS

A. All submittals shall comply with requirements of Section 013300 "Submittals" and Section 013325 " "Shop and Working Drawings, Product Data and Samples" for submittal requirements.

# 1.04 CONTRACTOR SUBMITTAL OF PROPOSED CONTRACTOR'S TESTING AGENCIES

- A. Projects requiring Special Inspection where the Contractor is utilizing a certified shop to produce material. DEN requires that testing be performed to satisfy the certification be no less than the following: All material and workmanship meets the requirements of a Contractor Material Testing Agency.
- B. The Contractor shall employ the services of a Testing Agency for process control and acceptance by the subcontractors and suppliers or material delivery for Contractor convenience or contractual obligations with others.
- C. The Contractor's Testing Agency must be accredited agency to perform any test required to be submitted for compliance with a Contract requirement or for use of data by DEN agencies for any official use, for examples and not to grant any obligation on the DEN Project Management Team, any payment reduction factor calculation. Any dispute or requirement to recalibrate testing equipment or machine, proof of compliance of material that was installed in contrary to manufacturer recommendation, any apparent defect due to adverse weather, improper installation, incomplete material record.
- D. Contractor's Testing Agency must be a qualified entity that has performed testing on similar jobs in size and complexity and has been accredited by AASHTO or CCRL or an approved equal to perform the tests required in the Contract. The CTA may also provide technicians to perform the required inspections. However, inspection and testing cannot be performed simultaneously by the same technician.
- E. The Contractor shall not submit for acceptance to the DEN Project Manager any testing agency or laboratory utilized in the design or construction document preparation or presently employed by DEN as part of DEN Quality Assurance.
- F. For consideration of acceptance, the Contractor shall submit to the DEN Project Manager the following items received from the CTA:
  - 1. Affidavit of current accreditation from a national certification and/or accreditation program.
  - 2. Evidence that the CTA is accredited to perform the testing required in the Contract Documents.
  - 3. Resumes and evidence of professional engineer registration and licensing in the State of Colorado for the personnel reviewing and signing test reports.

- 4. Resumes and current certifications verifying that SIA management and supervisory personnel, laboratory staff, field testing technicians, and inspecting technicians are qualified in accordance with ASTM C 1077, D 3666, D 3740, and E 329 requirements to perform the Work. NICET, ACI, WAQTC, LabCAT, CDOT, NRMCA, PCA, AWS, ASNT certifications, or a degree in a related engineering field with construction field experience can demonstrate qualifications. A list summarizing all management, supervisory, laboratory, field testing, and inspection personnel assigned to the Project including the testing and/or inspection each individual will be performing, certifications held by each individual, and the expiration date of each certification.
- 5. A matrix indicating each technical specification section, paragraph, quantity and type of sampling and/or testing required.
- 6. Copies of all laboratory, field testing, and inspection report forms.

# 1.05 SUBMITTAL OF REPORTS

- A. Test results shall be submitted by the Special Inspector and/or DEN Testing Agency to the DEN Project Manager after completion of inspections/tests by the SIA/OTA and prior to incorporation of the items into the Work unless the test or inspection must be done during or after installation.
- B. All field test results including but not limited to fresh concrete properties and in-place moisture-density shall be reported in legible draft form to the DEN/PMT Inspection and the Contractor Quality Control Manager immediately at the test site. Any failing test shall be reported separately to the DEN/PMT Inspector or DEN Project Manager within two (2) hours after the discovery.
- C. The Contractor's Quality Control Manager or his/her Authorized representative must keep track and official record of all tests passed, failed, or defected. The Contractor shall be fully responsible to show passing tests of all required elements. The lack of any passing test record of any required element does not waive the requirement to of testing or inspection as required by the Contract Documents and the IBC. The Contractor shall bear all costs associated with recovering missing tests including but not limited to the cost of the cost of disassembling, testing or inspecting, reassembling, and any indirect time or cost impacts of a missing required test or inspection.
- D. Typed test reports shall be provided by the testing agency to the DEN Project Manager as specified in Part 1 of this Section Weekly Summary Reports. The test reports shall be numbered sequentially in chronological order. Individual tests shall be numbered sequentially. The reports and tests shall also be organized per specification section. All test results must be reviewed and signed by a registered licensed engineer in the State of Colorado. The signature represents that the test procedures used are in strict conformance with the applicable testing standard, the calculated data are true and accurate, the tools and equipment used were in calibration, the sample was not contaminated and the persons running the test were qualified.
- E. A plan of work and administrative procedure shall be established to assure that all test and inspections frequency required are performed and all defects are tracked and retested and re-inspected to meet all applicable specifications, codes, and standards.
- F. The Contractor shall track all tests performed on the daily reports and shall submit a statement for each phase of the Work showing all elements of Quality have been completed and all defects are addressed or scheduled to be addressed prior to covering the Work.
- G. Reports of inspections and test activities are record documents and shall be maintained in a manner that provides integrity of item identification, acceptability, and traceability. Reports shall identify the following:

- 1. Contractor's name.
- 2. DEN Contract number and title.
- 3. Testing Agency name.
- 4. Name of items inspected/tested including a physical description and, as applicable, model and make.
- 5. Quantity of items.
- 6. Inspection/test procedure used. If national standards are used, any deviation from these standards.
- 7. Date the sample was taken and the date the test was made.
- 8. Location, by coordinates, building grid or station number, of where tests and/or samplings were performed including environmental condition where applicable. Include plan drawing indicating location of test and work item sampled or tested.
- 9. Name of inspector/tester.
- 10. In the event the testing or sampling is a re-test or re-sampling, reference the previous respective testing or sampling report.
- 11. Specified requirements in the Contract that the item must meet. Include reference to technical specification section and paragraphs.
- 12. Acceptability.
- 13. Deviations/nonconformance.
- 14. Corrective action.
- 15. Evaluation of results.
- 16. All information required for the specific test as specified in the applicable ASTM standard.
- 17. Signature of authorized evaluator.

#### 1.06 WEEKLY SUMMARY REPORTS

- A. The SIA/OTA shall prepare and submit to the DEN Project Manager a weekly summary report each week that summarizes by specification section all work activities and results for the quality control tests and inspections conducted during that period.
- B. The weekly summary report shall be submitted within two (2) weeks from the end of the reporting period. At a minimum, the weekly summary report shall identify all inspections, test types, test locations, testers, test results, specifications, whether the test passed or failed, quantity of materials placed and the number of tests performed for each material, and the material supplier, installer and Contractor.
- C. Re-tests shall be identified in a fashion that easily correlates to the failing test. Any failed tests that have not been corrected when the report is published shall be highlighted and noted in the cover letter of the report. The SIA shall identify costs of re-testing or additional site visits required due to scheduling changes by the Contractor. A current Corrective Action Report log (CAR) shall also be included in the weekly summary report.
- D. The weekly report shall be submitted per Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples" requirements.

## PART 2 - PRODUCTS (NOT USED)

## PART 3 - EXECUTION

## 3.01 CORRECTION OR REMOVAL OF NONCONFORMING MATERIAL

A. The Contractor is obligated to correct or remove nonconforming materials, whether in place or not. If necessary, the DEN Project Manager will send written notification to the Contractor to correct or remove the defective materials from the Project. If the Contractor fails to respond, the DEN Project Manager may order correction, removal, and/or replacement of defective materials by others, in which case the Contractor shall bear all costs incurred related to the correction, removal and/or replacement of the defective materials.

## 3.02 PERFORMANCE

A. If the DEN Project Manager determines that the SIA or its personnel are not effectively enforcing or performing the testing and documentation requirements specified in the Contract, the DEN Project Manager will, state in writing, the requirement for the Contractor to remove and replace SIA or such personnel at no cost to DEN.

## 3.03 CONTROL OF MEASURING AND TEST EQUIPMENT

- A. The SIA shall select measuring and test equipment in such a manner as to provide proper type, range, accuracy, calibration, and tolerance for determining compliance with specified requirements. Measuring and test devices shall be calibrated, adjusted and maintained at prescribed intervals prior to use based upon equipment stability and other conditions affecting measurement.
- B. Provisions shall be made for the proper handling and storage of equipment. Calibration shall be accomplished using certified standards that have a known traceable relationship to the National Institute of Standards and Technology. Every calibrated measuring and test device shall show the current status, date of last calibration and the due date for the next calibration. Calibration records shall be maintained onsite as quality records and shall be made available for inspection upon the DEN Project Manager's request.

## PART 4 - MEASUREMENT

# 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

## PART 5 - PAYMENT

#### 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

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TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 015050 - MOBILIZATION

# **SECTION 015050**

## MOBILIZATION

## PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Section 012910 "Schedule of Values"

#### 1.02 SUMMARY

- A. The Work specified in this Section consists of preparatory work and operations including, but not limited to the following:
  - 1. Those necessary for the movement of personnel, equipment, supplies, and incidentals to the work site.
  - 2. For the establishment of all offices, buildings and other facilities necessary for the Work on the Project.
  - 3. For all other work and operations that must be performed or costs incurred prior to beginning work on the various Contract items on the work site.

#### 1.03 SUBMITTALS

- A. Refer to Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples" for submittal procedures.
- B. Submit a Mobilization Schedule a minimum of fourteen (14) days prior to first billing for mobilization.

#### 1.04 DELIVERY

A. Delivery to the work site of construction tools, equipment, materials, and supplies shall be accomplished in conformance with all local governing regulations.

#### PART 2 - PRODUCTS

#### 2.01 PRODUCTS

A. Provide construction tools, equipment, materials, and supplies of the type and quantities that will facilitate the timely execution of the Work.

## PART 3 - EXECUTION

#### 3.01 EXECUTION AND REMOVAL

A. Provide personnel, products, construction materials, equipment, tools, and supplies at the work site at the time they are required and scheduled to be installed or utilized.

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 015050 - MOBILIZATION

# PART 4 - MEASUREMENT

## 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

#### PART 5 - PAYMENT

#### 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item. Reference Division 2 Item C-105 Mobilization.

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 015210 - TEMPORARY FACILITIES

# **SECTION 015210**

# TEMPORARY FACILITIES

#### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
  - 1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.
  - 2. Section 312319 "Dewatering" for disposal of ground water at Project site.

#### 1.03 DESCRIPTION

- A. The Work specified in this Section consists of furnishing, installing, operating, maintaining, and removing temporary construction barriers, enclosures, and field facilities including the Contractor's construction offices, staging areas, yards, storage areas, electrical power, telephone, water, fire protection, and sanitary service.
- B. Construction Offices, Construction Yards and Storage Areas:
  - The Contractor's offices, construction yards and laydown and storage areas shall be located as shown on the Contract Drawings and/or as designated by the DEN Project Manager. All construction offices, staging areas, and material storage areas are to occur within these areas. The DEN Project Manager may but is not required to approve the Contractor to use office, laydown areas and storage areas at DEN but not designated specifically for this Project.
  - 2. Any activity that is expected to result in disturbance of the ground surface equal to or greater than one acre or part of a larger project that is expected to disturb equal to or greater than one acre, is required to be identified in their Erosion Control permit. These areas include, but are not limited to, laydowns, borrow areas, stockpiles, and storage areas regardless of the location.
  - 3. All areas of ground disturbance are required to be stabilized in accordance with State, local, and airport rules and regulations prior to permit termination and/or closure of the Contract.
  - 4. The Contractor shall restore any area on DEN property that becomes contaminated as a result of its operations in accordance with Airport Rule and Regulation 180. Restoration shall be either to applicable standards under Federal and State law or to such other levels as may be required by the Manager of Aviation, at the Manager's sole discretion.
  - 5. All temporary facility sites must be inspected prior to Contract closeout.
    - a. The DEN Project Manager or authorized representative shall conduct an inspection of contractor areas used during the life of the project. These areas include but are not limited to, staging areas, laydown areas, borrow areas, and contractor yards and offices.

| TECHNICAL SPECIFICATIONS              |
|---------------------------------------|
| DIVISION 01 – GENERAL REQUIREMENTS    |
| SECTION 015210 - TEMPORARY FACILITIES |

- The DEN Project Manager will ensure these areas have been properly stabilized in accordance with DEN Rules and Regulations and required permits. Site must be restored to the condition in which the City initially provided to the Contractor. A representative from DEN Environmental Services shall be present during the final walk through.
  - 7. Contractor materials shall be managed in accordance with all applicable Environmental Regulations.
  - 8. Temporary facilities which the Contractor desires to locate in secondary laydown and staging areas adjacent to the Work or within the project limits are subject to approval by the DEN Project Manager. If approved, these areas must also be included as part of the erosion control permit.
  - 9. Access to and security of the Contractor's construction offices, yard, temporary facilities, and storage areas shall be as shown on the Contract Drawings or as specified in the Contract Special Conditions.
  - 10. Contractor Field Office:
    - a. The Contractor shall acquire all necessary permits for installation and construction work related to the Contractor's field office and fencing.
    - b. The Contractor shall provide, as part of the Contractor's on-site field office, a conference room for weekly meetings. Minimum size to accommodate fifteen (15) people with the currently approved schedule posted on a wall. The conference room shall have a network connection with a computer monitor, and a telephone with speakerphone functionality.
    - c. Jack the mobile office unit off its wheels and provide support. Enclose the underside of the trailer with weatherproof skirting.
    - d. Install tie downs in compliance with all applicable codes.
    - e. Provide access to the field office and easily accessible space for parking six (6) full size passenger automobiles as a minimum. Grade the field office site, access roadway, and parking area for drainage, and surface with gravel paving or crushed stone.
    - f. Water and sewer lines to the field office, if installed, shall be installed so they will not freeze.
  - 11. All Contractor Storage Yards must be fenced. Submit fencing plan and typical details to DEN Project Manager at least seven (7) days before planned execution for review and acceptance.
  - 12. In accordance with Denver Fire Department Requirements, all Temporary Facilities shall have signage that lists the following information:
    - a. Company Name
    - b. Contact Telephone Number
    - c. Facility Address
- C. Electrical Service
  - 1. Provide lighting and power for field offices, storage facilities and other construction facilities and areas.
  - 2. Provide power centers for electrically operated and controlled construction facilities including tools, equipment, testing equipment, interior construction lighting, heating, cooling and ventilation equipment.
  - 3. Provide night security lighting at secured areas within construction limits at offices, storage facilities, temporary facilities and excavated areas.
  - 4. Provide battery operated or equivalent emergency lighting facilities at construction areas where normal light failures would cause employees to be subjected to hazardous conditions. Test such facilities monthly and maintain a record of these tests

| TECHNICAL SPECIFICATIONS              |
|---------------------------------------|
| DIVISION 01 – GENERAL REQUIREMENTS    |
| SECTION 015210 - TEMPORARY FACILITIES |

for the DEN Project Manager's review.

- 5. Contractor shall bear all costs of temporary electric service permits, fees, and deposits required by the governing authorities, and connection charges and temporary easements including installation, maintenance, and removal of equipment.
- D. Telephone/Communications Service:
  - 1. The contractor shall furnish, install, and maintain broadband telecommunications service in the contractor's main field office. Contractor shall also furnish, install, and maintain telephony service at the main field office, or cellphone(s) such that the DEN Project Manager is able to reach a contractor's representative at all times.
  - 2. Comply with requirements of Division 26 Sections.
- E. Water Service:
  - 1. The Contractor shall make all connections and extensions required and shall make use of water in direct support of the Work. The Contractor shall install an approved Water Department tap at the City's water source prior to obtaining any water. The Contractor shall arrange and pay for its supply/distribution system from the City's point of connection. The location and alignment of the Contractor's temporary supply/distribution system must be approved by the DEN Project Manager prior to its installation. The Contractor shall leave in place all above ground and underground water distribution facilities unless otherwise directed by the DEN Project Manager.
  - 2. The Contractor shall not use in place fire hydrants or standpipes as sources for construction water or potable water.
  - 3. Comply with requirements of Division 22 Sections.
- F. Fire Protection:
  - 1. Furnish, install, and maintain temporary portable fire protection equipment throughout the construction period at all buildings (including the project site), maintenance shops, and fuel storage on all large construction equipment and at the location of any flammable materials or construction materials.
  - 2. Comply with requirements of Division 21 Sections.
- G. Sanitary Service:
  - 1. Furnish, install, and maintain temporary sanitary facilities and services throughout the construction period.
  - 2. Ensure that separate or single user toilets shall be provided to ensure privacy between the sexes.
  - 3. Provide general washing facilities adequate for the number of employees.
  - 4. Provide special washing facilities adequate for the number of employees engaged in the application of paints, coating, and other volatile or hazardous materials.

# 1.04 SUBMITTALS

- A. Refer to Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples" for submittal procedures.
- B. Submit a shop drawing within five (5) days of the Notice to Proceed that shows the following:
  - 1. Temporary facilities equipment and materials (include manufacturer's literature).
  - 2. Details and layout of temporary installations including fences, roads, parking,

| TECHNICAL SPECIFICATIONS              |
|---------------------------------------|
| DIVISION 01 – GENERAL REQUIREMENTS    |
| SECTION 015210 - TEMPORARY FACILITIES |

buildings, storage areas, signage, and drainage plans.

- 3. Lighting plan showing temporary lighting facilities, electrical service panel location, electrical circuit diagram, and anticipated light level on the working roadway, pathway, or construction surface.
- 4. As-built description of any temporary underground utilities referenced to the Airport grid and benchmark system within five (5) days of completion of the installation.
- 5. Copies of all permits for all temporary facilities.

#### 1.05 QUALITY CONTROL

A. Provide products for, and the execution of, the Work of this Section that will satisfy the requirements of all applicable codes. Provide products that satisfy the requirements of the applicable codes.

## PART 2 - PRODUCTS

## 2.01 ELECTRICAL SERVICE

A. Provide temporary power and lighting equipment consisting of fixtures, transformers, panel boards, groundings, lamps, switches, poles, conduits and wiring sized and capable of continuous service and having adequate capacity to ensure a complete operating system. Comply with NEMA and Division 26 requirements.

## 2.02 TELEPHONE/COMMUNICATIONS SERVICE

A. Provide equipment that is compatible with that of the current DEN service provider and the telephone exchange to which the Contractor connects.

#### 2.03 POTABLE WATER SERVICE

- A. Provide sanitary materials and equipment that satisfies the requirements of codes and regulations pertaining to temporary water systems. Bottled products may be used if those products comply with codes. Clearly label portable containers having a dispensing tap and used only for drinking water. Provide single service disposable cups and a sanitary container for dispensing cups. A trash receptacle shall be provided and maintained beside each portable water supply.
- B. If paints, coatings and other volatile or hazardous materials injurious to humans will be applied as part of the Contract, provide washing facilities with warm water of approximately 120 degrees F.

## 2.04 FIRE PROTECTION

A. Fire extinguishers shall be UL rated and shall comply with the International Fire Code with City of Denver amendments.

#### 2.05 SANITARY SERVICE

- A. Provide materials and equipment adequate for the intended purposes, which will neither create unsanitary conditions nor violate the codes applicable to temporary sanitary facilities. Enclosures for toilet and washing facilities shall be weatherproof, sight proof, ventilated and sturdy, and shall be maintained in clean conditions.
- B. Provide portable type toilet facilities that satisfy the requirements of OSHA.

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 015210 - TEMPORARY FACILITIES

C. Provide washing facilities as needed. Furnish soap, single-service paper towels, towel dispenser, and towel receptacle.

# PART 3 - EXECUTION

## 3.01 ELECTRICAL SERVICE

- A. The approximate location of primary power lines is shown on the Construction Drawings. The Contractor shall locate electrical service where it will not interfere with equipment, storage spaces, traffic, and prosecution of the Work or the work of others. Installation shall present a neat and orderly appearance and shall be structurally sound. Maintain service in a manner that will ensure continuous electrical service and safe working conditions.
- B. Comply with requirements of Division 26 Sections.

## 3.02 TELEPHONE/COMMUNICATION SERVICE

A. Install temporary telephone service in a neat and orderly manner, and make structurally and electrically sound to ensure continuous service. Modify, relocate, and extend, as work progress requires. Place conduit and cable where those products will not interfere with traffic, work areas, materials, handling equipment, storage areas, and the work of other contractors. Service lines may be aerial.

#### 3.03 WATER SERVICE

- A. Install the systems in a neat and orderly manner. Make them structurally and mechanically sound. Provide continuous service. Modify, relocate, and extend the systems as the Work progresses.
- B. Comply with requirements of Division 22 Sections.
- C. Locate systems where they will be convenient to work stations, sanitary facilities, and first aid station but will not interfere with traffic, work areas, materials handling equipment, storage areas, or the work of other contractors.
- D. Provide sanitary bubbler drinking fountains if potable water service is available. Disinfect water piping before using for the potable water service.
- E. Install vacuum breakers, backflow preventers, and similar devices in a manner and location that will prevent temporary water from returning to the water mains.
- F. Do not incorporate any part of temporary water distribution system into the permanent water distribution system.

#### 3.04 FIRE PROTECTION

- A. Install products in conformance with the requirements of the applicable Denver Fire Department and OSHA regulations.
  - 1. Provide functional, approved fire extinguishers that are clearly identified for fire and an accessible supply of water during the period of construction. These fire extinguishers shall remain in place until permanent fire protection systems are functional.
- B. Instruct construction personnel as to location and use of temporary fire protection equipment.
- C. Comply with requirements of Division 21 Sections.

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 015210 - TEMPORARY FACILITIES

## 3.05 SANITARY SERVICE

- A. Place temporary sanitary and washing facilities in a neat and orderly manner within the limits of the Work and convenient to the workstations. Make these facilities structurally and mechanically sound. Modify, relocate, and extend the facilities as required by progress of the Work.
- B. Service toilets at those time intervals that will minimize the accumulation of wastes and prevent creation of unsanitary conditions, but not less than once a week.
- C. The waste from the sanitary and wash facilities shall be disposed of in accordance with all applicable rules, regulations, and laws and with the least environmental impact.

#### 3.06 FENCING

A. Contact all utility service companies prior to planning fence location and post locations for certification of current utilities. Locate pothole posts planned within five (5) feet of known utilities.

## 3.07 SIGNAGE

A. Contractor shall not provide any signage for temporary facilities without prior approval from the DEN Project Manager.

## 3.08 REMOVAL

A. The Contractor shall locate all temporary facilities including the underground utilities so they can be completely removed without damaging permanent work or the work site of other contractors.

#### PART 4 - MEASUREMENT

#### 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

# PART 5 - PAYMENT

#### 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

# **SECTION 015525**

# TRAFFIC CONTROL

## PART 1 - GENERAL

# 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. The Work specified in this Section consists of furnishing plans and designs for traffic control and haul routes, implementing these plans with all necessary personnel and equipment. Installation may require but not be limited to signage, cones, flaggers, signal lights, lighting and temporary roads.
- B. All Work must be in conformance with the "Manual of Uniform Traffic Control Devices for Streets and Highways" (MUTCD) and CDOT Standard Plans regarding traffic control.
- C. The Contractor must coordinate the Contractor's proposed traffic control needs with the needs of other contractors on the airport construction site in writing through the DEN Project Manager.
- D. Refer to Article 805 Protection of Street and Road System in the General Contract Conditions, Current Edition.

# 1.03 QUALITY CONTROL

- A. Temporary signal work shall conform to CDOT Standard Plans and the current version of the CDOT Standard Specifications.
- B. Designate a qualified person to inspect and test traffic control devices daily and to ascertain that those devices are continuously operating, serviceable, in place, and clean.
- C. Provide certified personnel who will be responsible for design, implementation, and inspection of traffic control needs.

#### 1.04 SUBMITTALS

- A. Refer to Technical Specifications Sections 013300 "Submittals" and 013325 "Shop and Working Drawings, Product Data and Samples" for submittal procedures.
- B. Submit a Traffic Control Plan (TCP) that includes, at a minimum, the following list of items for approval before starting Work. Submit an updated TCP when necessary to modify traffic operation or undertake a construction activity that creates a different traffic pattern:
  - 1. Traffic blockade and reductions anticipated to be caused by construction operations.
  - 2. Temporary detours.
  - 3. A Method of Handling Traffic (MHT) must be submitted and approved by the DEN Project Manager, which at a minimum will show and describe proposed location, dates, hours, and duration of detours, vehicular traffic routing, and management, traffic control devices for implementing detours and details of barricades.

- C. Submit Haul Route Plan for both on- and off-site hauls. The Haul Route Plan shall be submitted 30 days prior to hauling any permanent material. The Plan shall be updated as the Contractor's plans change.
- D. Specific Traffic Considerations: The DEN Project Manager may require the Contractor to revise the Traffic Control Plan to address traffic considerations not included in the Contractor's plan.
- E. Shutdown requests for any impact to traffic must be submitted for approval a minimum of five days before the intended shutdown. These requests will be made through the DEN Project Manager.

# PART 2 - PRODUCTS

# 2.01 TRAFFIC CONTROL DEVICES

A. Devices including signs, delineators, striping, barriers, barricades, and high-level warning devices shall conform to the latest revision of the MUTCD and the latest revision of the Colorado Department of Transportation Standard Plans.

# PART 3 - EXECUTION

# 3.01 TEMPORARY TRAFFIC CONTROL DEVICES

- A. Place temporary control devices in a manner that allows for the smooth flow of traffic at the posted speed limit, limiting hazards or abrupt changes in direction.
- B. Place traffic cones or delineators as directed by the MUTCD. Operate warning lights between sunset and sunrise.
- C. Place control devices so that approaching traffic is alerted to hazards and variances to normal traffic patterns.
- D. Clean and repair damaged devices or replace them with new devices within 24 hours, and provide flaggers or other mitigation as required to maintain safe traffic control until devices have been replaced.

# 3.02 TEMPORARY TRAFFIC STRIPING AND PAVEMENT MARKINGS

- A. Full-compliance striping is required at all times per the MUTCD.
- B. Temporary signs must be replaced with permanent signing within three days per the MUTCD.

# 3.03 FLAGGERS AND GATE GUARDS

- A. Furnish flaggers where required for safety and by the MHT.
- B. Furnish gate guards where required by the Construction Safety and Phasing Plan (CSPP).
- C. See Section 011420 for gate guard shack requirements.

#### 3.04 CONSTRUCTION VEHICULAR TRAFFIC

A. Restrict construction vehicles to approved haul routes.

B. Any contractor requests for revisions or modifications to the approved airfield haul routes in the contract documents, or for airfield haul routes not otherwise depicted in the contract documents, must follow the change management process.

# 3.05 CONTROLLING VEHICULAR AND PEDESTRIAN FLOW ADJACENT TO WORK SITE

A. Ensure that construction operations will not impede normal traffic. Where work is in the area of pedestrian or occupant activity, the Contractor shall detail a plan for managing pedestrian traffic safely. Refer to Title 8 - Protection of Persons and Property, Section 801.1 in the General Contract Conditions, Current Edition.

## 3.06 SIGNS

- A. Refer to Title 8, Article 802 Protective Devices and Safety Precautions in the General Contract Conditions, Current Edition.
  - 1. The Contractor must contact the DEN Project Manager a minimum of five (5) working days in advance of construction for installation, relocation, or removal of regulatory parking signs.
- B. Coordinate and pay any expense associated with the furnishing and installation of all parking regulatory signs, such as "No Stopping Any Time," etc., at the work site.
- C. Furnish and install any necessary advance detour or guidance signing.
- D. Authorize, modify, and install regulatory parking controls and vehicle turn restrictions.
- E. Implement those traffic control modifications outside of the traffic control zone that are necessary to manage diverted traffic.
- F. Clean and repair damaged signage or replace with new signage within 24 hours, and provide mitigation as required to maintain site safety until signage has been installed.

# PART 4 - MEASUREMENT

# 4.01 METHOD OF MEASUREMENT

- A. Measurement for Traffic Control shall be per lump sum. This item shall include installation, maintenance, re-positioning (as required by phase or the DEN Project Manager) and removal upon completion; of the barricades; and flaggers. Tubular barricades, temporary haul routes and temporary signage, temporary vehicle pavement markings, gates, and any other associated with providing traffic control for the project.
- B. Measurement for Gate Guard shall be made per hour. This shall include all associated costs with providing the Gate Guards. See Section 0111420 for Gate Guard Shack requirements.
- C. Measurement for Guard Shack shall be per lump sum. This shall include the portable building with foundation, a portable toilet, post mounted convex mirror, portable generator, light plant, any necessary permitting, and any other item necessary to install the guard shack for use during the project.

# PART 5 - PAYMENT

#### 5.01 METHOD OF PAYMENT

- A. Payment for Traffic Control shall be per lump sum. This item shall include installation, maintenance, re-positioning (as required by phase or the DEN Project Manager) and removal upon completion; of the low-profile barricades (with lights), tubular barricades, temporary haul routes and temporary signage, temporary vehicle pavement markings, gates, flaggers, and any other item associated with providing traffic control for the project.
- B. Payment for Gate Guard will be made at the contract unit price per hour per gate guard. This shall include all associated costs with providing the Gate Guards.
- C. Payment for Gate Guard Shack will be made at the contract unit price per lump sum. This shall include the portable building with foundation, a portable toilet, post mounted convex mirror, portable generator, light plant, any necessary permitting, and any other item necessary to install the guard shack for use during the project.

Payment shall be made under:

| 015525a | Traffic Control – Per Lump Sum  |  |  |
|---------|---------------------------------|--|--|
| 015525b | Gate Guard – Per Hour           |  |  |
| 015525c | Gate Guard Shack – Per Lump Sum |  |  |

# **SECTION 015719**

## TEMPORARY ENVIRONMENTAL CONTROLS

## PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Specifications Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Title 8 Protection of Persons and Property in the General Contract Conditions, 2011 Edition, specifically the following articles:
  - 1. Article 806 Protection of Drainage Ways
  - 2. Article 807 Protection of Environment
  - 3. Article 808 Hazardous and Explosive Materials or Substances
  - 4. Article 809 Archaeological and Historical Discoveries
- C. Denver Municipal Airport System Rules and Regulations, Part 180-Environmental Management.
- D. DEN Environmental Management System (EMS)

## 1.02 SUMMARY

- A. The Work specified in this Section consists of identifying, and avoiding or mitigating adverse environmental impacts to air, water, soil, and other natural resources caused by construction activities.
  - 1. The Contractor, in conducting any activity on airport property or in conducting work for an airport project not on airport property, shall comply with all applicable airport, local, state, and federal rules, regulations, statutes, laws, and orders.
  - 2. Work shall not commence on any project until all FAA approvals have been received, applicable permits have been issued and signed by permittee, and all inspection requirements have been satisfied in accordance with State and local permitting requirements.

# 1.03 SUBMITTALS

- A. Refer to Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples" for submittal procedures.
- B. Within ten (10) days after Notice to Proceed on a task order, the Contractor shall submit the following if applicable, unless waived by the DEN Project Manager:
  - 1. Submittals pertaining to water quality management:
    - a. Construction Activities Stormwater Discharge Permit
      - 1) City and County of Denver
        - a) Sewer Use & Drainage Permit (SUDP)
        - b) Construction Activities Stormwater Discharge Permit (CASDP)
      - 2) Colorado Department of Public Health and Environment (CDPHE) Colorado Discharge Permit System (CDPS) Authorization to Discharge (Contractor need not submit a copy of the general permit or the general permit rationale)
         a) CDPS General Permit for Stormwater Discharges Associated with

| TECHNICAL SPECIFIC  |          |                  | DENVER INTERNATIONAL AIRPORT  |
|---------------------|----------|------------------|---|
| DIVISION 01 – GENER |          |                  | NTS RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2<br>RONMENTAL CONTROLS CONTRACT NO. 202476290   |
| SECTION 013713-1E   |          |                  | Construction Activities   |
|                     |          | b)               | CDPS General Permit for Associated with Non-Extractive Industrial   |
|                     |          | c)               | Activity<br>CDPS General Permit for Construction Dewatering Discharges (Prior to<br>obtaining a CDPS General Permit for Construction Dewatering   |
|                     |          |                  | Discharges permit, the Contractor shall submit a draft permit<br>application and the final permit application for DEN review and<br>approval PRIOR to submittal to CDPHE. The Contractor need not |
|                     | 3)       | Un               | submit a copy of the general permit or the general permit rationale.<br>on request the contractor shall provide the following documentation   |
|                     | 3)       |                  | Stormwater Management Plan (SWMP)   |
|                     |          | a)<br>b)         | CASDP Inactivation Request  |
|                     |          | c)               | CDPS Notice of Termination  |
|                     |          | ,                | Permit Transfer Application   |
|                     |          | d)               | Modification Application  |
|                     |          | e)<br>f)         | Discharge Monitoring Reports (DMRs)   |
|                     |          | g)               | A copy of the well permit from the state Division of Water Resources for  |
|                     |          | 9)               | every new well that diverts or for the monitoring of groundwater. (A  |
|                     |          |                  | draft copy of the Notice of Intent for any borehole structure filed with  |
|                     |          | L.)              | the state Division of Water Resources).   |
|                     |          | h)               | Section 404 related permitting (Prior to obtaining a permit issued by the   |
|                     |          |                  | US Army Corps of Engineers, the contractor shall submit a draft copy<br>of the application and coordinate with efforts DEN Environmental  |
|                     | 1)       | Dei              | Services).  |
|                     | 4)       |                  | visions or amendments to the CASMP by the Contractor: At the  |
|                     |          |                  | npletion of the Project, after final stabilization has been achieved and  |
|                     |          |                  | epted in accordance with CASDP requirements, the Contractor shall omit a copy of the CASDP Inactivation Request.  |
| 2.                  | Submit   | tals pe          | ertaining to sewage holding tanks associated with buildings and trailers:   |
|                     | For pur  | poses            | of this Section, the generic term "sewage holding tank" means "onsite   |
|                     |          |                  | reatment system (OWTS)," "individual sewage disposal system (ISDS)",<br>"septic tank", or "septic system":  |
|                     | a. Dr    | aft co           | py of the permit application for a sewage holding tank.   |
|                     | b. Co    |                  | the Sewer Use & Drainage Permit issued by the Denver Department of  |
|                     |          |                  |   |
|                     |          | ealth.           | the OWTS permit issued by the Denver Department of Environmental  |
| 3.                  | Submit   | tals pe          | ertaining to air quality management:  |
|                     |          | •                | any permit issued by the CDPHE Air Pollution Control Division (APCD)  |
| 4.                  | Submit   | tals pe          | ertaining to storage tanks and containers:  |
|                     |          |                  | the approved application issued by the State of Colorado, Department of   |
|                     | La<br>pe | bor ar<br>troleu | and Employment, Division of Oil and Public Safety, for installation of<br>m, or other regulated substances, storage tanks located on airport<br>and used for the Project.                         |
|                     | b. Co    | opy of           | permits issued by the Denver Fire Department for storage tank<br>ons, storage tank removals, and hazardous materials use/storage.   |
|                     |          |                  | Spill Prevention, Control, and Countermeasure (SPCC) Plan for   |
|                     | J. U     | (P) (P)          |   |

- Copy of Spin Prevention, Control, and Countermeasure (SPCC) Plan for petroleum storage tanks and containers with capacity of 55 gallons of oil or greater located on airport property and used for the Project.
- 5. Copies of any other plans, permits, permit applications, correspondence with regulatory agencies, including violations, waste manifests, results of laboratory analyses, or other environmental documentation required for the Project not previously identified herein.

# 1.04 RELATED DOCUMENTS

- A. Code of Federal Regulations (CFR) Publications, including, but not limited to, the following:
  - 1. 33 CFR 323 Permits for discharges of dredged or fill materials into waters of the United States.
  - 2. 40 CFR Protection of Environment.
  - 3. 49 CFR 171-180 Hazardous Materials Transportation Regulations.
- B. Colorado Revised Statutes, including, but not limited to, the following:
  - 1. Water Quality Control, Title 25, Article 8.
  - 2. Air Quality Control, Title 25, Article 7.
  - 3. Hazardous Waste, Title 25, Article 15.
  - 4. Noise Abatement, Title 25, Article 12.
  - 5. Petroleum Storage Tanks, Title 8, Article 20.5.
  - 6. Liquefied Petroleum Gas (LPG) Storage Tanks, Title 8, Article 20, Part 4.
  - 7. Solid waste regulations.
- C. City and County of Denver Executive Orders, including, but not limited to, the following:
  - 1. Executive Order No. 115 Required Use of Denver-Arapahoe Disposal Site (Landfill).
  - 2. Executive Order No. 123 Office of Sustainability and Citywide Sustainability Policy.
  - 3. Denver Revised Municipal Code, Title II, Sections 48-44 and 48-93 Solid Waste.
  - 4. Denver Revised Municipal Code, Title II, Section 4-43 Idling Restriction.
- D. City and County of Denver Construction Activities Stormwater Manual.
- E. Any other applicable rules, regulations, ordinances, and guidance must be followed as applicable.
- F. Refer to Section 013300 "Submittal Procedures" and 013325 "Shop and Working Drawings, Product Data and Samples" for submittal procedures.
- G. Refer to Section 017419 "Construction Waste Management" for waste management requirements

#### PART 2 - PRODUCTS

#### 2.01 PRODUCTS

- A. Products required for the Work shall meet all Environmental Requirements.
- B. At a minimum, products for erosion and sediment control must conform to the technical requirements contained in the City and County of Denver "Construction Activities Stormwater Manual" and the current version of the "Mile High Flood District's Urban Storm Drainage Criteria Manual, Volume 3: Best Management Practices".

#### PART 3 - EXECUTION

#### 3.01 AIR POLLUTION CONTROLS

- A. The Contractor shall use appropriate control measures to comply with applicable air quality permit requirements. Additionally, the Contractor must be aware of the following procedures and techniques while conducting construction activities on DEN property. NOTE: Application of dust control measures should be discussed and outlined in the Dust Control Plan.
  - 1. Apply water as needed to the construction site haul roads, disturbed surface areas and public access roads as needed to suppress dust. The use of chemical stabilizer can be requested by the Contractor. The type of stabilizer to be used and locations of use must be included in the Dust Control Plan, which must be approved by the DEN Project Manager prior to application.
  - 2. The Contractor shall suspend all earthmoving activities if wind speed exceeds 30 mph. For purposes of this Section, the generic term "earthmoving" means clearing, grubbing, excavation, topsoil removal, backfilling, embankment work, grading, trenching, drilling, and installation of borings. Contractors are expected to check wind speeds with the airport's ramp tower to demonstrate compliance with this requirement. In addition, the Project may be shut down if two of three of the Runway Visual Range (RVR) instruments read visibility of 2,400 feet or less. The instruments are used by FAA Control Tower personnel to ensure safe aircraft operations. Costs for shutdowns due to wind velocities or RVR readings shall not be grounds for delay or extra cost claims.
- B. Burning of materials is strictly prohibited on DEN property.

# 3.02 WATER POLLUTION CONTROLS

- A. The Contractor shall conduct construction activities in accordance with all applicable permit requirements. In addition, the Contractor shall comply with the following procedures and requirements while conducting activities on DEN property:
  - 1. Water encountered during construction cannot be discharged to the stormwater system or placed onto the ground surface without a permit AND prior written approval by the DEN Project Manager. If groundwater or stormwater is anticipated to be encountered and the Contractor desires to discharge it to the stormwater system or onto the ground surface, then the Contractor must obtain an appropriate CDPS discharge permit in advance of the discharge unless this activity is specifically authorized under the CDPS Construction Stormwater Permit.
  - 2. If water is encountered and the Contractor desires to discharge these waters to the sanitary sewer system, then the Contractor must obtain approval from DEN Environmental Services in advance of the discharge.
  - 3. The Contractor shall ensure that stormwater that comes in contact with storage areas does not become impacted and discharged to the stormwater sewer system or to an impervious surface. Furthermore, any materials in storage areas shall not be stored directly on the ground.
  - 4. The Contractor shall not operate any valves, sluice gates or other drainage appurtenances related to any DEN sewer system without the prior approval of both the DEN Project Manager and DEN Environmental Services. Any violation of this directive may result in the payment of a financial penalty by the Contractor if the State of Colorado assesses such a penalty.

# 3.03 EROSION CONTROL AND SEDIMENTATION CONTROL

A. This Work consists of constructing, installing, maintaining and removing, if required, temporary and permanent control measures during the life of the Contract (and possibly afterward) until the Contractor achieves final stabilization of the site to prevent or minimize erosion, sedimentation, and pollution of any state waters in accordance with all

Environmental Requirements.

- B. The Contractor is responsible for compliance with all requirements in accordance with the CASDP, the City and County of Denver Construction Activities Stormwater Manual, the approved CASMP, and CDPS-issued permits.
- C. Temporary facilities, including but not limited to storage areas, laydowns, borrow areas, and contractor offices and work yards, shall be managed in accordance with Section 015210 "Temporary Facilities".
- D. Clean soil fill may be stockpiled in any area that has been previously approved and signed off by the DEN Section Manager of Construction, Design and Planning, and Environmental Services. Soil stockpiles are considered a potential pollutant source and must be addressed in the CASMP and/or SWMP.
- E. Make immediately available, upon the DEN Project Managers request, all labor, material, and equipment judged appropriate by the DEN Project Manager to maintain suitable erosion and sediment control features. These actions requested by the DEN Project Manager take precedence over all other aspects of project construction that have need of the same labor, material and equipment, except those aspects required to prevent loss of life or severe property damage.

# 3.04 CONSTRUCTION OF CONTROL MEASURES FOR EROSION AND SEDIMENTATION

- A. The Contractor must install control measures in accordance with the most recent version of the "Mile High Flood District's Urban Storm Drainage Criteria Manual, Volume 3: Best Management Practices and the City and County of Denver Construction Activities Stormwater Manual".
  - 1. Deviations from these two documents are allowed with written consent from the City and County of Denver CASDP Inspector.

# 3.05 STORAGE OF OIL, FUELS, OR HAZARDOUS SUBSTANCES

- A. The Contractor shall prevent oil or other hazardous substances, as defined in federal and state regulations, from entering the ground, drainage or local bodies of water, and shall provide containment, diversionary structures, or equipment to prevent discharged oil from reaching a watercourse and take immediate action to contain and clean up any spill of oily substances, petroleum products, or hazardous substances. The Contractor shall provide one or more of the following preventive systems at each petroleum storage site:
  - 1. Dikes, berms, or retaining walls capable of containing at least 100% of the volume of the largest single tank and equipped with sufficient freeboard to contain precipitation events. The secondary containment must be "sufficiently impermeable" to prevent a release to the environment.
  - 2. Culverting, curbing, guttering, or other similar structures capable of containing at least 100% of the volume of the largest single tank and freeboarding from precipitation.
- B. The provision of such preventive systems shall be subject to acceptance by the DEN Project Manager prior to tank installation and shall follow the SPCC regulations (40 CFR Part 112).
- C. Prior to bringing any containers of 55-gallon or above capacity onto DEN property for storage of oil, fuel, or other petroleum substances, the Contractor may be required to prepare an SPCC Plan that conforms to 40 CFR Part 112. The plan must include a certification either from a Professional Engineer or self-certification, if applicable, as well as management approval from the legally responsible Contractor representative.

# 3.06 SPILL RESPONSE AND NOTIFICATION

- A. The Contractor is responsible for all spills that may result from its activities. For ANY suspected or confirmed release or spill of oil, fuel, solid waste, hazardous waste, unknown materials, lavatory waste, or miscellaneous chemicals, etc., that occurs as the result of the Contractor's activities on DEN property, the Contractor is required to take immediate action to mitigate the release or spill and report it to the DEN Project Manager and to the DEN Communications Center at (303) 342-4200.
- B. The Contractor is responsible for notifying the appropriate regulatory agency in the event suspected and/or confirmed releases are identified, in accordance with regulatory requirements.

# 3.07 SITE REMEDIATION AND RESTORATION

- A. The Contractor shall be required to perform any necessary site assessment and remediation activities required by applicable regulatory agency.
- B. During routine construction activities, the Contractor is required to manage soils using typical construction techniques. The Contractor must differentiate between soils and wastes, including contaminated soils versus clean soils, and determine those materials that can remain on DEN property and those that must be transported off site for disposal.
- C. During all construction activities that require the management of soils, the Contractor must notify the DEN Project Manager and DEN Environmental Services (ES) that soils being managed may be impacted by industrial activities conducted at the airport. "Process knowledge" pertaining to previous use and/or impact for the locations under construction can be used to determine whether impacted soils are probable. Also, common indices such as soil staining and odor can be used as a determination for the probable condition. If probable contamination conditions are suspected, the Contractor will notify the DEN Project Manager and DEN ES immediately. At that time, which may be before the Work is initiated where indicative conditions exist, all work will cease until a sampling and analysis approach is determined and implemented by the proper responder.
- D. If the site conditions warrant based on evidence of spillage or contamination, process knowledge, and/or visual or olfactory observations, the Contractor may be required to conduct sampling and analysis to confirm that no remedial action is required. Prior to conducting any removal activities, the Contractor must provide a Scope of Work to the DEN Project Manager describing the proposed site assessment activities.
- E. The impacted project will modify its operation to include a segregation area where probable impacted soils can be placed, stored, and sampled for characterization. Should the soil materials be determined to exceed the applicable standards, the DEN Project Manager, in conjunction with DEN ES, will be responsible for the proper disposal of these materials. Materials that are determined to contain contamination levels below the applicable standards can be considered clean soils and placed back into the excavation or reused elsewhere on DEN property. In accordance with Part 3 of this Section, materials removed that are suitable for recycling will be placed within areas designated on DEN to store these materials.
- F. The Contractor shall restore any area on the Airport that becomes contaminated as a result of its operations. Restoration shall be either to applicable standards under federal and state law or to such other levels as may be required by the Manager of Aviation, at the Manager's sole discretion. Such restoration shall be completed at the earliest possible time, and the Contractor's restoration shall be subject to inspection and approval by the Manager of Aviation or duly authorized representative. See DEN Rules & Regulations - Part 180.

# PART 4 - MEASUREMENT

## 4.01 METHOD OF MEASUREMENT

A. Measurement for Temporary Erosion Control shall be considered lump sum. There shall be no separate measurement for work associated with any temporary erosion control measures implemented during the life of the contract required to satisfy all local, State, and Federal stormwater permitting. The contractor shall prepare and submit a Schedule of Values to the DEN Project Manager for his/her approval prior to initial installation of any control measures.

## PART 5 - PAYMENT

## 5.01 METHOD OF PAYMENT

A. Payment for Temporary Erosion Control will be made at the contract unit price per lump sum for work completed and accepted in place as described in the Schedule of Values. This price will be full compensation for furnishing all materials, all labor, equipment, tools, and incidentals necessary to complete this item, including the removal and disposal of such items in accordance with the contract documents and specifications.

The Contractor shall be responsible for payment of all fees associated with review of environmental permit applications and processing of environmental permits.

Payment will be made under:

015719a Temporary Erosion Control – Per Lump Sum

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TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 015810 - TEMPORARY SIGNS

# **SECTION 015810**

## TEMPORARY SIGNS

#### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. Section includes requirements for the following:
  - 1. Construction signage visible to the public.
  - 2. Temporary directional, informational, or regulatory signage.
- B. Related Requirements:
  - 1. Section 015210 "Temporary Facilities" for requirements for temporary facilities.

#### 1.03 SUBMITTALS

A. Submit temporary sign finishes, materials and paint, etc., for review and approval by DEN Project Manager prior to any fabrication.

## 1.04 QUALITY CONTROL

A. Construction and other temporary signage visible to the public must be commercial grade quality, professionally fabricated, and installed based on the location of the sign. The Contractor is responsible to maintain this signage until it is no longer needed, and to remove signage from the site.

#### PART 2 - PRODUCTS

# 2.01 GENERAL

- A. Interior signs that are visible and not physically accessible to the public may be made of rigid board, such as "Gator Board", with vinyl messages. All edges must be finished and all fasteners concealed.
- B. Interior signs that are visible and physically accessible by the public must be vandal-proof. Acceptable examples of vandal-proof signs are messages applied second surface with concealed tamperproof fasteners.
- C. Exterior signs must be vandal-proof and fabricated of weatherproof materials.

#### **PART 3 - EXECUTION**

#### 3.01 HARDWARE

A. Interior Signs: Attach with suitable adhesive and/or tape which may be removed without damage to finishes.

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 015810 - TEMPORARY SIGNS

B. Exterior Signs: Must be secured to withstand site conditions and varying weather conditions.

## 3.02 SIGN FINISHES, MATERIALS, AND PAINT

A. Provide temporary signage to reflect permanent sign design and/or as directed by the DEN Signage Design Project Manager. Submit temporary sign finishes, materials and paint, etc., for review and approval prior to any fabrication.

#### 3.03 MAINTENANCE

A. The Contractor shall maintain temporary signage until it is no longer needed, as determined by DEN Project Manager.

## 3.04 REMOVAL

A. The Contractor shall remove all temporary signs, and clean and refurbish affected areas to their original, or intended, condition.

## PART 4 - MEASUREMENT

## 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

## PART 5 - PAYMENT

## 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

# SECTION 016000 - PRODUCT REQUIREMENTS

## PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

A. 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; and comparable products.

#### B. Related Requirements:

- 1. Section 012300 "Alternates" for products selected under an alternate.
- 2. Section 012510 "Substitutions" for requests for substitutions.
- 3. Section 014225 "Reference Standards" for applicable industry standards for products specified.

## 1.03 DEFINITIONS

- A. Products: Items obtained 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. Products salvaged or recycled from other projects are not considered new products.
  - 3. Comparable Product: Product that is demonstrated and approved through submittal process 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. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," 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 additional manufacturers named in the specification.

# 1.04 SUBMITTALS

2.

- A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number, title, and Drawing numbers and titles.
  - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
    - DEN Project Manager's Action: If necessary, DEN Project Manager will request

| ISSUED FOR CONSTRUCTION | RS&H       | Revision No. 2022-Q2 |
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| 20 DEC 2024             | 016000 - 1 |                      |

additional information or documentation for evaluation within one week of receipt of a comparable product request. DEN Project Manager will notify Contractor[ through Construction Manager] of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven (7) days of receipt of additional information or documentation, whichever is later.

- a. Form of Approval: As specified in Section 013300 "Submittal Procedures."
- b. Use product specified if DEN Project Manager does not issue a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 013300 "Submittal Procedures." Show compliance with requirements.

# 1.05 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
  - 1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
  - 2. If a dispute arises between contractors over concurrently selectable but incompatible products, DEN Project Manager will determine which products shall be used.

## 1.06 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. 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 determine compliance with the Contract Documents and to determine 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 the Project, including the 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. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
  - 5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.

- 6. Protect stored products from damage and liquids from freezing.
- 7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

# 1.07 PRODUCT WARRANTIES

- A. Refer to Title 18 Warranties, Guarantees and Corrective Work of the General Contract Conditions, 2011 Edition.
- B. Submittal Time: Comply with requirements in Section 017720 "Contract Closeout."

# PART 2 - PRODUCTS

# 2.01 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged, and unless otherwise indicated, 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. Owner 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," DEN Project Manager will make selection.
  - 5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
  - 6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures:
  - 1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
  - 2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
  - 3. Products:
    - a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered unless otherwise indicated.
    - Nonrestricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.
  - 4. Manufacturers:

a.

Restricted List: Where Specifications include a list of manufacturers' names,

| TECHNICAL SPECIFICATIONS              |
|---------------------------------------|
| DIVISION 01 – GENERAL REQUIREMENTS    |
| SECTION 016000 - PRODUCT REQUIREMENTS |

provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience [will] [will not] be considered[ unless otherwise indicated].

- b. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
- 5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated 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 requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
- C. Visual Matching Specification: Where Specifications require "match DEN Project Manager's sample", provide a product that complies with requirements and matches DEN Project Manager's sample. DEN Project Manager's decision will be final on whether a proposed product matches.
  - 1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012510 "Substitutions" for proposal of product.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by DEN Project Manager from manufacturer's full range" or similar phrase, select a product that complies with requirements. DEN Project Manager will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

# 2.02 COMPARABLE PRODUCTS

- A. Conditions for Consideration: DEN Project Manager will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, DEN Project Manager may return requests without action, except to record noncompliance with these requirements:
  - 1. Evidence that the proposed product does not require 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 architects and owners, if requested.
  - 5. Samples, if requested.

# 2.03 MATERIALS

- A. General: Comply with requirements specified in other Sections.
  - 1. For projects requiring compliance with sustainable design and construction practices and procedures including but not limited to the requirements of Executive Order 123, use products for patching that comply with requirements in Section 018113.13

"Sustainable Design Requirements - LEED for New Construction and Major Renovations," Section 018113.16 "Sustainable Design Requirements - LEED for Commercial Interiors," Section 018113.19 "Sustainable Design Requirements - LEED for Core and Shell Development."

- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
  - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to DEN Project Manager for the visual and functional performance of in-place materials.

# PART 3 - EXECUTION (NOT USED)

# PART 4 - MEASUREMENT

# 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

# PART 5 - PAYMENT

# 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

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# SECTION 016610

## STORAGE AND PROTECTION

#### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. The Work specified in this Section consists of providing storage and protection of the materials, products and supplies which are to be incorporated into the construction and indicating such storage areas on the working drawings with the location and dates when such areas will be available for each purpose.
- B. Related Requirements:
- C. Section 015210 "Temporary Facilities" for requirements for temporary facilities.

#### 1.03 SUBMITTALS

- A. Refer to Technical Specifications Sections 013300 "Submittal Procedures" and 013325 "Shop and Working Drawings, Product Data and Samples" for submittal procedures. Submit concurrently with submittals required in Section 013223 "Construction Layout, As-built and Quantity Surveys".
- B. Submit working drawings showing locations of storage areas not indicated on the Contract Drawings.
- C. Submit descriptions of proposed methods and locations for storing and protecting products.

#### PART 2 - PRODUCTS

## 2.01 MATERIALS

A. Materials required for the storage and protection of the items specified shall be durable, weatherproof and either factory finished or painted to present an appearance acceptable to the DEN Project Manager and the City. Storage facilities shall be uniform in appearance with similar materials used to the maximum extent possible.

#### PART 3 - EXECUTION

#### 3.01 GENERAL REQUIREMENTS OF EXECUTION

- A. Palletize materials, products, and supplies that are to be incorporated into the construction immediately so they are stored off the ground. Material and equipment shall be stored only in those areas that are indicated as storage areas on the Contract Drawings and on the reviewed and accepted working drawings.
  - 1. Store these items in a manner which will prevent damage and facilitate inspection.
  - 2. Leave seals, tags, and labels intact and legible.

- 3. Maintain access to products to allow inspection.
- 4. Protect products that would be affected by adverse environmental conditions.
- B. Periodically inspect stored products to ensure that products are being stored as stipulated and that they are free from damage and deterioration.
  - 1. Any damaged or deteriorated materials must be replaced immediately to avoid delays in the project schedule.
- C. Do not remove items from storage until they are to be incorporated into the Work.
- D. The Contractor shall ensure that all protective wrappings and coverings are secure and ballasted to prevent any items from deterioration and/or subsequent dislodgment. All items on the work site that are subject to becoming windborne shall be ballasted or anchored.

# 3.02 HANDLING AND TRANSPORTATION

- A. Handling:
  - 1. Avoid bending, scraping, or overstressing products. Protect projecting parts by blocking with wood, by providing bracing or by other approved methods.
  - 2. Protect products from soiling and moisture by wrapping or by other approved means.
  - 3. Package small parts in containers such as boxes, crates, or barrels to avoid dispersal and loss. Firmly secure an itemized list and description of contents to each container.
- B. Transportation:
  - 1. Conduct the loading, transporting, unloading, and storage of products so that they are kept clean and free from damage.

# 3.03 STORAGE

- A. Store items in a manner that shall prevent damage to DEN's property. Do not store hydraulic fluids, gasoline, liquid petroleum, gases, explosives, diesel fuel, and other flammables in excavations. Petroleum products and chemicals must be stored in closed containers within secondary containment.
- B. Provide sheltered weather-tight or heated weather-tight storage as required for products subject to weather damage.
- C. Provide blocking, platforms or skids for products subject to damage by contact with the ground.
- D. All material shall be stored according to the manufacturer's recommendations. Any material that has to be stored within specified temperature or humidity ranges shall have a 24-hour continuously written recording made of the applicable condition. Should the recording show that the material was not stored within the recommended ranges the material shall be considered defective and in nonconformance. If a certification from the manufacturer's engineering design representative is provided stating that the actual variations are acceptable and will in no way harm the material or affect warranties, then the deficiency will be considered corrected.
- E. Store hazardous material separately, with all material marked with a label showing the hazard and how to treat exposure to the material. Store incompatible materials separately.
- F. Extra materials that are left over at the completion of the Work shall be removed from the Project site by the Contractor unless they are required to be delivered to DEN as per

Contract Document requirements for maintenance stock.

#### 3.04 LABELS

A. Flammable and combustible substances shall be stored in flammable storage cabinets that conform to OSHA requirements and shall be labeled "FLAMMABLE - KEEP FIRE AWAY" and "NO SMOKING".

## PART 4 - MEASUREMENT

## 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

# PART 5 - PAYMENT

## 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

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TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 017330 - CUTTING AND PATCHING

# **SECTION 017330**

# **CUTTING AND PATCHING**

#### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Refer to Article 316, Cutting and Patching the Work in the General Contract Conditions, 2011 Edition

## 1.02 SUMMARY

- A. Section Includes:
  - 1. Project information.
  - 2. Work covered by Contract Documents.
  - 3. Phased construction.
  - 4. Work by DEN.
  - 5. Work under separate contracts.
  - 6. Future work.
  - 7. Purchase contracts.
  - 8. DEN-furnished products.
  - 9. Contractor-furnished, DEN-installed products.
  - 10. Access to site.
  - 11. Coordination with occupants.
  - 12. Work restrictions.
  - 13. Specification and drawing conventions.
  - 14. Miscellaneous provisions.
- B. Related Requirements:
  - 1. Section 015210 "Temporary Facilities" for limitations and procedures governing temporary use of DEN's facilities.
  - 2. Section 015719 "Temporary Environmental Controls" for environmental control requirements.
  - 3. Section 024119 "Selective Demolition" for selective demolition of structures and other elements.
  - 4. Section 099123 "Interior Painting" for interior painting of areas of cutting and patching.
- C. Alternates: Refer to Division 01 Section 012300 "Alternates" for description of Work in this Section affected by Alternates.

#### 1.03 DEFINITIONS

| TECHNICAL SPECIFICATIONS              | DENVER INTERNATIONAL AIRPORT               |
|---------------------------------------|--|
| DIVISION 01 – GENERAL REQUIREMENTS    | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| SECTION 017330 - CUTTING AND PATCHING | CONTRACT NO. 202476290                     |

- A. Cutting: Removal of existing construction to permit installation of or to perform other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

#### 1.04 SUBMITTALS

- A. Refer to Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples" for submittal procedures.
- B. Cutting and Patching Proposal: Submit a proposal describing procedures at least thirty (30) calendar days before the time cutting and patching will be performed, requesting approval to proceed. Obtain approval of the cutting and patching proposal by DEN Project Manager before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work or repair of other work damaged by unsatisfactory work. The proposal shall include at least the following information:
  - 1. Identification of the Contract and the Contractor's name.
  - 2. Description of proposed work:
    - a. Scope of cutting, patching, alteration, or excavation.
    - b. The necessity for cutting or alteration.
    - c. Drawing showing location of the requested cutting or alteration, along with radar or x-ray report.
    - d. Trades that will execute the work.
    - e. Products proposed to be used.
    - f. Extent of refinishing to be done.
    - g. Alternatives to cutting and patching.
  - 3. Changes to Existing Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in the building's appearance and other significant visual elements.
  - 4. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted and proposed dates of interruption of service. Additionally, verify and locate anything in or behind the area prior to cutting.
  - 5. Proposed Dust Control and Noise Control Measures: Submit a statement or drawing that indicates the measures proposed for use, proposed locations, and proposed time frame for their operation. Identify options if proposed measures are later determined to be inadequate.
  - 6. Effect on the work and other surrounding work or on structural or weatherproof integrity of Project.
  - 7. Written concurrence of each contractor or entity whose work will be affected.
  - 8. Cost proposal, when applicable.

#### 1.05 QUALITY CONTROL

- A. Operational Elements: Do not cut and patch ANY operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance, decreased operational life or safety unless approved by the DEN Project Manager. Operations elements may include, but are not limited to the following:
  - 1. Primary operational systems and equipment.
  - 2. Air or smoke barriers.

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 017330 - CUTTING AND PATCHING

- 3. Fire protection systems.
- 4. Control systems.
- 5. Communication systems.
- 6. Conveying systems.
- 7. Electrical wiring systems.
- 8. Operating systems of special construction as described in Divisions 13 and 26.
- 9. HVAC systems.
- B. Miscellaneous Elements: Do not cut and patch ANY of the following elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or those results in increased maintenance, decreased operational life or safety unless approved by the DEN Project Manager. Miscellaneous elements may include, but are not limited to the following:
  - 1. Water, moisture, or vapor barriers.
  - 2. Membranes and flashings.
  - 3. Exterior curtain wall construction.
  - 4. Equipment supports.
  - 5. Piping, ductwork, vessels and equipment.
  - 6. Noise control and vibration control elements and systems.
  - 7. Stud walls.
  - 8. Roofing system
- C. Visual Elements: Do not cut and patch ANY 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 reduce, in DEN's sole opinion, the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactorily manner.
  - 1. If possible, retain the original installer or fabricator to cut and patch exposed Work listed below. If it is impossible to engage the original installer or fabricator, engage another recognized, experienced, and specialized firm as approved by the DEN Project Manager. Visual elements may include, but are not limited to:
    - a. Stonework and stone masonry.
    - b. Ornamental metal.
    - c. Matched-veneer woodwork.
    - d. Preformed metal panels.
    - e. Firestopping.
    - f. Window wall systems.
    - g. Terrazzo.
    - h. Flooring.
    - i. Wall coverings and finishes.
    - j. HVAC enclosures, cabinets, or covers.
- D. Cutting and Patching Conference: Before proceeding, meet at the Project site with all parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 017330 - CUTTING AND PATCHING

- 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.
  - 1. All effort shall be made to engage the original installer or fabricator to patch the exposed Work listed below that is damaged during selective demolition. If it is impossible to engage the original installer or fabricator, engage another recognized, experienced and specialized firm as approved by the DEN Project Manager:
    - a. Processed concrete finishes.
    - b. Stonework and stone masonry.
    - c. Ornamental metal.
    - d. Matched-veneer woodwork.
    - e. Preformed metal panels.
    - f. Firestopping.
    - g. Window wall systems.
    - h. Terrazzo.
    - i. Flooring.
    - j. Wall coverings and finishes.
    - k. HVAC enclosures, cabinets, or covers.

# 1.07 MATERIALS

- A. General: All patching material shall be of the type specified for the material being patched. Comply with requirements specified in other specifications Sections.
- B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually and texturally 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 as approved by the DEN Project Manager.:

PART 2 - PRODUCTS (NOT USED)

# PART 3 - EXECUTION

# 3.01 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. Provide additional substrates or materials if required to achieve desired final results of patching work.
  - 2. Immediately notify the DEN Project Manager, in writing, of unsuitable, unsafe, or unsatisfactory conditions.
  - 3. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.
  - 4. Proceed with patching only after construction operations requiring cutting are complete and inspected by the DEN Project Manager.

#### 3.02 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut to ensure structural value or integrity.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the 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 Services: Where existing services are required to be removed, relocated, or abandoned, bypass such services before cutting to avoid or minimize interruption of services to occupied areas. Do not interrupt services in without approval from the appropriate authority. Refer to the appropriate Shutdown specification/procedures for applicable services.

# 3.03 POLLUTION CONTROLS

- A. Dust Control: Use water mist, temporary enclosures, and other suitable methods to limit the spread of dust and dirt. Comply with governing environmental protection regulations. Reference Section 015719 "Temporary Environmental Controls" for requirements.
  - 1. Do not use water when it may damage existing construction or create hazardous or objectionable conditions such as ice, flooding, and pollution.
  - 2. Wet mop floors to eliminate trackable dirt and wipe down walls and doors of demolition enclosures. Vacuum carpeted areas. Professionally clean carpeted areas if required.
  - 3. For outdoor concrete saw cutting operations, slurry waste must be vacuumed up immediately to prevent migration off-site to pervious surfaces, surface waters or drains.
- B. Disposal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
  - 1. Concrete slurry waste must be disposed of properly in accordance with applicable airport, local and state rules and regulations.
- C. Cleaning: Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to the condition existing before selective demolition operations began.

# 3.04 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Execute cutting and demolition by methods that will prevent damage to other work and will provide a proper surface to receive patching.
  - 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.
  - 2. Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerance, and finishes.
  - 3. Restore work that has been cut or removed; install new products to provide complete work in accordance with requirements of the Contract Documents.
  - 4. Fit work airtight and fire safe to pipes, sleeves, ducts, conduit, and other penetrations through surfaces as required by the Contract Documents.

- B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and other similar operations, including excavation, using methods least likely to damage elements retained to adjoining construction. If possible, review proposed procedures with original installer and comply with original installer's written recommendations.
  - 1. In general, use ground fault hand or small power tools designed (to short if metal is hit) for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to the size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  - 3. Concrete: Use a cutting machine such as an abrasive saw or a diamond-core drill.
  - 4. 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 specification 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. For continuous surfaces, refinish entire unit to the nearest break line. For an assembly, refinish entire unit.
  - 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
    - a. Where patching occurs on a painted surface, apply primer and intermediate paint coats over the patch and apply the final coat over the entire unbroken surface containing the patch. Provide additional coats until the patch blends with adjacent surfaces.
  - 4. Ceilings: Patch, repair or re-hang existing ceilings as necessary to provide an evenplane surface of uniform appearance.
- D. Fire Rated Construction: Where rated elements are cut, reconstruct to approved designs to provide original fire rating.

# 3.05 CORE DRILLING

- A. The Contractor shall execute sufficient x-rays or ground penetrating radar (GPR) at each location planned for core drilling prior to submittal to the DEN Project Manager and to utility representatives for approval for core drilling. The request for approval shall be submitted a minimum seven (7) days before Core Drilling. The request for approval shall indicate on the x-ray or radar information regarding alternate locations or core drilling to avoid structural members and any embedded conduit. Embedded conduit may be metallic or plastic. The x-ray or radar system shall be capable of detecting both types of conduit.
- B. Core drilled "cores" and the core-drilled opening shall be inspected by DEN Project Manager Representatives prior to installation of any systems in new openings.
- C. The request for approval shall indicate on the x-ray or radar information regarding alternate locations or core drilling to avoid structural members and any embedded conduit.

Embedded conduit may be metallic or plastic. The x-ray or radar system shall be capable of detecting both types of conduit.

D. X-ray activities may not be performed during hours of activity or occupancy in the area of the x-ray system. The Contractor shall provide all manpower and barriers required to secure the areas affected by x-ray activities.

# PART 4 - MEASUREMENT

## 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

## PART 5 - PAYMENT

## 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

# END OF SECTION 017330

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# SECTION 017419

## CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

## PART 1 - GENERAL

# 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

## 1.02 SUMMARY

- A. This section describes the requirements for the disposal, recovery, reuse or recycling of non-hazardous and non-asbestos containing construction and demolition waste for both LEED or Envision and non-LEED or Envision projects. Note that LEED and Envision projects may have more specific requirements than identified in this section.
- B. Waste materials shall be managed in accordance with all local, state, and federal regulations.
- C. Related Requirements:
  - 1. Section 013300 "Submittal Procedures" for submittal procedures.
  - 2. Section 013325 "Shop and Working Drawings, Product Data and Samples" for submittal procedures.
  - 3. Section 015719 "Temporary Environmental Controls" for environmental control procedures.
  - 4. .
  - 5. Sction p-101"Revoval of Existing Pavements" for disposition of waste resulting from demolition.

6.

# 1.03 DEFINITIONS

- A. Salvaged Materials: Defined as materials that exist on the site that can be reused, either on site or by another entity
- B. Recyclable Materials: Defined as materials that exist on site or are generated during the construction process that can be recycled and/or remanufactured into another material. Recyclable waste includes, but is not limited to, the following:
  - 1. Concrete.
  - 2. Asphalt
  - 3. Ferrous and non-ferrous metals.
  - 4. Untreated wood, engineered wood.
  - 5. Gypsum wallboard.
  - 6. Corrugated cardboard, paper goods.
  - 7. Plastic.
  - 8. Glass, insulation.

- 9. Carpet.
- 10. Paints, fabric.
- 11. Rubber.
- 12. Stone and brick.
- C. Hazardous Waste: Per 6 CCR 1007-3, those substances and materials defined or classified as such by the Hazardous Waste Commission pursuant to 25-15-302, C.R.S., as amended. Also, see hazardous waste definition per 40 CFR 261.3.
- D. Non-Recyclable: Defined as all waste material that is not able to be recycled due to contamination, lack of recycling facilities, or salvage options, or high cost.
- E. High Cost: Defined as the cost to dispose of waste at landfill plus 20%.

# 1.04 SUBMITTALS

- A. The Contractor shall submit a list of materials and products used with Safety Data Sheets (SDS). Examples include chemicals, solvents, fuels, building materials, etc.
  - 1. A hardcopy or electronic link to the SDS for all materials and products used, if applicable.
  - 2. Identify storage methods for materials, including measures to segregate incompatible materials.
- B. The Contractor shall submit a Waste Management Plan to the DEN Project Manager and DEN Environmental Services. Minimum Waste Management Plan requirements include the following:
  - 1. A list of all waste streams generated by the project
    - For each waste stream listed, the Contractor shall identify the handling/transportation method, the disposal method, and the disposal facility utilized.
    - b. If the Contractor anticipates generation of hazardous waste, the Contractor shall provide its USEPA (generator) identification number.
  - 2. Pollution Prevention Measures
    - a. Describe best practices that will reduce waste. For example, waste reduction measures, requiring vendors to deliver materials in reusable packaging, etc.
  - 3. Waste Management Plan Training.
  - 4. Storage of materials.
  - 5. Spill response.
- C. Approval of Contractor's Waste Management Plan does not relieve the contractor of responsibility for compliance with applicable environmental regulations.
  - 1. The contractor shall maintain a record of the amounts of construction and demolition waste generated, recycled, reused, salvaged, or disposed of, in pounds for review.
  - 2. Hauling manifest records shall be maintained and available for review. Manifest forms are available from the DEN Project Manager.

# 1.05 SOLID WASTE MANAGEMENT

A. Solid waste is defined in 40 CFR 261.2 and includes all putrescible and non-putrescible solid, semisolid and liquid wastes, but does not include hazardous waste which is treated as

TECHNICAL SPECIFICATIONS DENVER INTERNATIONAL AIRPORT DIVISION 01 – GENERAL REQUIREMENTS RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL CONTRACT NO. 202476290

a separate subset of solid waste. Certain types of non-hazardous solid waste may require special handling; such wastes are sometimes called "special waste."

Hazardous and special solid waste may be generated by the actions of the Contractor including, but not limited to, the direct purchase of hazardous materials, demolition, site preparation, grading, excavation, construction, or maintenance of equipment. Refer to Section 015719 "Temporary Environmental Controls" for additional information regarding the storage of hazardous substances.

Remove scrap and waste material and dispose of it in accordance with all laws, codes, regulations, ordinances, and permits.

The Contractor is responsible for the safe management and disposal of all hazardous and non-hazardous solid waste and shall dispose of such waste in accordance with all environmental requirements. Waste disposal options include reuse on the Project (with DEN approval only), sale, use for fuel, donation to other public or private projects, or through disposal in approved disposal sites, either free of charge or for a fee. The method of disposal is restricted according to the classification of the waste. Hazardous and non-hazardous solid waste shall not be abandoned, dumped, buried or in any other way disposed on DEN property.

City and County of Denver Executive Order No.115 requires all non-recyclable nonhazardous solid waste generated at DEN to be directed to the Denver Arapahoe Disposal Site (DADS) landfill. This includes all non-hazardous solid waste collected or transported in Denver vehicles, Contractor vehicles, or subcontractor vehicles. Through the DEN Project Manager, the Contractor shall establish accounts in advance for the disposal of nonhazardous solid waste generated on the project. Therefore, this bid shall include costs for transportation to the DADS landfill only and the City is responsible for disposal fees and any applicable State surcharges. The Contractor is responsible for any special handling charge imposed by the transporter or the DADS landfill operator.

 In the interest of public relations and to maximize the long-term use of the Site, haul routes adjacent to DADS shall be limited to State Highway 30 or E-470 unless these routes are impassable. Refer to Exhibit A at the end of this Section for preferred haul route. Specifically, Gun Club Road between Interstate Highway 70 ("I-70") and Mississippi Avenue shall be avoided.

Some of the naturally occurring material found by the Contractor, especially tar or oilimpregnated soil, may not be obviously hazardous. Physical and chemical analyses and tests may be required to determine if the material meets the criteria set forth in State of Colorado, CDPHE, Hazardous Materials and Waste Management Division (HMWMD) regulations. The Contractor shall pay for such chemical analyses and will coordinate with local authorities to determine the quantity and origin of samples analyzed for any questionable material. The Contractor will provide the classification information of the material to the City.

The routes to be followed when transporting solid or hazardous wastes may be subject to the approval of the local agency having jurisdiction.

The Contractor shall maintain copies of MSDSs for any and all materials used at the airport Project, at its on-site project office or other designated location. DEN Environmental Services may, at any time, request copies of MSDSs and/or waste manifests for any waste shipments from the project site. Any such request must be fulfilled within one (1) business day.

The Contractor shall require all shipments to the work site to contain documentation that shows whether the material is hazardous or requires special handling, storage, or disposal; what type of material it is, what hazard(s) it poses, how to treat exposure(s); and the

TECHNICAL SPECIFICATIONS DENVER INTERNATIONAL AIRPORT DIVISION 01 – GENERAL REQUIREMENTS RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL CONTRACT NO. 202476290

quantity of hazardous material in the shipment. This information must be provided to the DEN Project Manager prior to any hazardous material being allowed on site.

Before leaving the site with any hazardous waste or material requiring special handling, storage or disposal, the Contractor must provide the DEN Project Manager with a detailed description of the material, its source, quantity, who is hauling it off site, and where it is being taken, along with verification that the destination site can legally receive it.

# PART 2 - PRODUCTS

## 2.01 DOCUMENTS

- A. A list of all materials and products used. Examples include chemicals, solvents, solvents, fuels, curing compounds, etc.
  - 1. A hardcopy or electronic link to SDSs for all materials and products used.
  - 2. Identify storage methods, including measures to segregate incompatible materials.
  - 3. Refer to the Waste Management Plan

# PART 3 - EXECUTION

## 3.01 REQUIREMENTS

- A. The Contractor shall not wash down equipment in such a manner as to flush grease, oils, detergents, and other contaminants onto the project site or onto airport property unless the waste is properly contained, treated, and disposed of.
- B. DEN maintains two dry concrete and asphalt recycling yards used for the accumulation and crushing of asphalt and concrete. The South Yard is located on 71st Ave just east of Jackson Gap Street. The North Yard is located on the south side of 110th, west of Queensburg Street.
- C. Concrete washwater cannot be discharged to surface waters or to storm sewer systems. Colorado Discharge Permit System (CDPS) coverage conditionally authorizes discharges to the ground of concrete wash water from washing of tools and concrete mixer chutes when appropriate best management practices (BMPs) are implemented.
  - 1. A bermed containment area that allows discharge water to infiltrate or evaporate;
    - a. Alternatives to bermed containment areas include portable concrete washout bins, and industrial washout containment systems where the accumulated waste is removed from the site and disposed of properly.
  - 2. Use of the washout site should be temporary (less than one year);
  - 3. The washout site should not be located in an area where shallow groundwater may be present, such as near natural drainages, springs, or wetlands
  - 4. Upon termination of the washout site, accumulated solid waste, which includes concrete waste and contaminated soils, must be removed from the site and disposed of properly.
- D. Rejected loads and/or other wet concrete or asphalt materials are PROHIBITED TO BE PLACED ANYWHERE on DEN property. These materials must be returned to the facility of origination or other permitted facility for proper disposal.
- E. Concrete saw cutting slurry must be properly contained and disposed of.

TECHNICAL SPECIFICATIONSDENVER INTERNATIONAL AIRPORTDIVISION 01 – GENERAL REQUIREMENTSRUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSALCONTRACT NO. 202476290

F. Unknown or questionable materials encountered during construction activities, must immediately be reported to the DEN Communications Center at (303) 342-4200 and the DEN Project Manager.

## PART 4 - MEASUREMENT

## 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

## PART 5 - PAYMENT

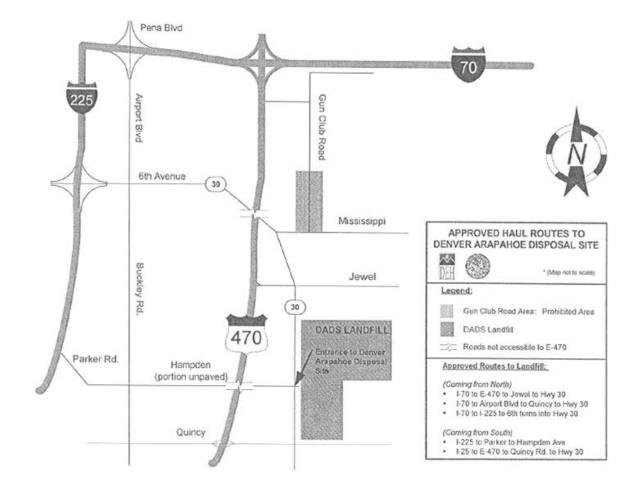
## 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

# END OF SECTION 017419

TECHNICAL SPECIFICATIONSDENVER INTERNATIONAL AIRPORTDIVISION 01 – GENERAL REQUIREMENTSRUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSALCONTRACT NO. 202476290

MAP OF ROUTE TO DADS LANDFILL



# **SECTION 017420**

# CLEANING

## PART 1 - GENERAL

## 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

## 1.02 SUMMARY

- A. The Work specified in this section consists of maintaining a clean, orderly, hazard free work site during construction, and final cleaning for the City's Final Acceptance. Failure to maintain the work site will be grounds for withholding monthly payments until corrected to the satisfaction of the DEN Project Manager.
- B. Refer to Article 325, Cleanup During Construction in the General Contract Conditions, 2011 Edition

## 1.03 SUBMITTALS

- A. Washing Plan: The Contractor shall prepare a plan describing the specific procedures and materials to be utilized for any equipment, vehicle, etc., washing activities. The plan must be submitted to the DEN Project Manager and approved by the DEN Project Manager and Environmental Services.
  - 1. Outdoor washing at DEN is not allowed unless the materials will be collected or managed in a manner to ensure that they will not enter the municipally owned separate storm sewer system (MS4). The materials can only be disposed at a location pre-approved by DEN Environmental Services (refer to DEN SWMP). Failure to comply with this requirement would result in the discharge of non-stormwater.
    - a. Outdoor wash materials that contain soaps or other cleaning chemicals must be collected and disposed of off site
  - Indoor washing must be conducted in accordance with the Best Management Practices (BMPs) detailed in the DEN SWMP. Refer to Section 015719 "Environmental Controls". In addition, all indoor washing must be conducted in a manner that ensures that there are no prohibited discharges to the sanitary sewer system.
    - a. All wash-water that will be disposed of into the sanitary sewer must comply with City and County Denver rules and regulations pertaining to prohibited discharges.

# PART 2 - PRODUCTS

## 2.01 CLEANING MATERIALS

- A. Utilize the type of cleaning materials recommended by the manufacturer for the surfaces to be cleaned.
- B. Maintain current Safety Data Sheets (SDS) on site for all chemicals. DEN Environmental Services must approve the chemicals used prior to discharge to the sanitary sewer system.

C. Ensure proper disposal of all wastes generated from the use of these materials. The

Contractor must ensure compliance with all environmental regulations. No wastes can be disposed of on DEN property.

## PART 3 - EXECUTION

## 3.01 INTERIM CLEANING

- A. Clean only when dust and other contaminants will not precipitate upon newly painted surfaces.
- B. Cleaning shall be done in accordance with manufacturer's recommendation.
- C. Cleaning shall be done in a manner and using such materials as to not damage the Work.
- D. Clean areas prior to painting or applying adhesive.
- E. Clean all heating and cooling systems prior to operations. If the Contractor is allowed to use the heating and cooling system, it shall be cleaned prior to testing.
- F. Clean all areas that will be concealed prior to concealment.
- G. Dispose of all fluids according to the approved Washing Plan.

## 3.02 FINAL CLEANING

- A. Refer to Article, Clean-up Upon Completion in the General Contract Conditions, 2011 Edition. Additionally, the Contractor, shall at a minimum, complete the following:
  - 1. Inspect interior and exterior surfaces, including concealed spaces, in preparation for completion and acceptance.
  - 2. Remove dirt, dust, litter, corrosion, solvents, discursive paint, stains, and extraneous markings.
  - 3. Remove surplus materials, except those materials intended for maintenance.
  - 4. Remove all tools, appliances, equipment, and temporary facilities used in the construction.
  - 5. Remove detachable labels and tags. File them with the manufacturer's specifications for that specific material for the City's records.
  - 6. Repair damaged materials to the specified finish or remove and replace.
  - 7. After all trades have completed their work and just before Final Acceptance, all catch basins, manholes, drains, strainers and filters shall be cleaned; roadway, driveways, floors, steps and walks shall be swept. Interior building areas shall be vacuum cleaned and mopped.
  - 8. Final cleanup applies to all areas, whether previously occupied and operational or not.
  - 9. Dispose of all fluids according to the approved Washing Plan.

## PART 4 - MEASUREMENT

## 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

#### PART 5 - PAYMENT

# 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

## **END OF SECTION 017420**

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TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 017515 - SYSTEM STARTUP, TESTING AND TRAINING

# **SECTION 017515**

# SYSTEM STARTUP, TESTING AND TRAINING

## PART 1 - GENERAL

## 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. Provide complete startup, testing, and operator training services to ensure operability of all systems supplied.
- B. Coordinate all start-up and testing with DEN's Commissioning consultant and/or DEN Asset Management through the DEN Project Manager.

## 1.03 SUBMITTALS

- A. Refer to Section 013300 "Submittal Procedures" and 013325 "Shop and Working Drawings, Product Data and Samples" for submittal procedures. Submit the following:
  - 1. Test procedures.
  - 2. Test reports.
  - 3. Training outline.
- B. Submit Qualification Data: For facilitator and instructor.
- C. Attendance Record: For each training module submit the following:
  - 1. Module title
  - 2. Module description
  - 3. Length of instruction time
  - 4. Participant names
- D. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

## 1.04 QUALITY ASSURANCE

- A. Facilitator Qualifications: A firm or individual experienced in training or educating personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: A factory-authorized service representative, experienced in operation and maintenance procedures and training.
- C. Pre-Instruction Conference: Conduct conference at Project site to comply with requirements in Section 014520 "Contractor Quality Control Program FAA". Review methods and procedures related to demonstration and training including, but not limited to, the following:

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 017515 - SYSTEM STARTUP, TESTING AND TRAINING

- 1. Inspect and discuss locations and other facilities required for instruction.
- 2. Review and finalize instruction schedule and verify availability of educational materials, instructor's personnel, audiovisual equipment, and facilities needed to avoid delays. Ensure that students are notified at least 14 days prior to the start of instruction.
- 3. Review required content of instruction.
- 4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

# 1.05 COORDINATION

- A. Coordinate instruction schedule with DEN's operations. Adjust schedule as required to minimize disrupting DEN's operations and to ensure availability of DEN's personnel. As required, include multiple classed to accommodate various shifts
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by DEN Project Manager.

# PART 2 - PRODUCTS (NOT USED)

# **PART 3 - EXECUTION**

## 3.01 FIELD TESTS AND ADJUSTMENTS

- A. All electrical and mechanical equipment including the interfaces with control systems and the communication system, and all alarm and operating modes for each piece of equipment, shall be tested by the Contractor to the satisfaction of the DEN Project Manager before any facility is put into operation. Tests shall be as specified herein and shall be made to determine whether the equipment has been properly assembled, aligned and connected. Any changes, adjustments, or replacements required to make the equipment operate as specified shall be carried out by the Contractor as part of the Work.
  - 1. At least thirty (30) days before the time allowed in the construction schedule for commencing startup and testing procedures, the Contractor shall submit to the DEN Project Manager three (3) copies of the detailed procedures the Contractor proposes for testing and startup of all electrical and mechanical equipment. These procedures are submitted for review and acceptance by DEN.
  - 2. The Contractor's startup and testing procedures shall include detailed descriptions of all pre-operational hardware, electrical, mechanical and instrumentation used for testing work.
    - a. Each control device, item of electrical, mechanical and instrumentation equipment, and all control circuits shall be considered in the testing procedures which shall be designed in a logical sequence to ensure that all equipment has been properly serviced, aligned, connected, wired, calibrated and adjusted prior to operation.
  - 3. Testing procedures shall be designed to duplicate as nearly as possible all conditions of operations and shall be carefully selected to ensure that the equipment is not damaged. All filters shall be in place during startup and testing.
    - a. Once the DEN Project Manager has accepted the testing procedures, the Contractor shall provide checkout, alignment, adjustment and calibration signoff

| TECHNICAL SPECIFICATIONS                              |
|---|
| DIVISION 01 – GENERAL REQUIREMENTS                    |
| SECTION 017515 - SYSTEM STARTUP, TESTING AND TRAINING |

forms for each item of equipment and each system that will be used.

- b. The Contractor and the DEN Project Manager shall use the signoff forms in the field jointly to ensure that each item of electrical, mechanical and instrumentation equipment and each system has been properly installed and tested. The Contractor shall cooperate with project-wide systems contractors where startup and testing is to be conducted concurrently.
- 4. Any special equipment needed to test equipment shall be provided by the Contractor to the City at no cost for a period of thirty (30) days during startup.
- B. Before starting up the equipment, the Contractor shall properly service it and other items, which normally require service in accordance with the maintenance instructions. The Contractor shall be responsible for lubrication and maintenance of equipment and replacement filters throughout the entire equipment "break-in" period described by the manufacturer.
  - 1. The Contractor shall be responsible for the startup, adjustment, preliminary maintenance, and checkout of all equipment and instrumentation. All systems shall be carefully checked for conformance with the design criteria.
  - 2. If any equipment or system does not operate as specified in the Contract, the Contractor shall immediately replace or repair components until it operates properly.
  - 3. The Contractor shall submit a test report to the DEN Project Manager within thirty (30) days after completion of the system startup period.

# 3.02 SYSTEMS STARTUP AND TESTING

- A. The Contractor shall be responsible for a 30-day startup period during which time all hardware, electrical and mechanical equipment, communications, alarm systems, and associated devices shall be energized and operated under local and automatic controls. The Contractor shall be present during the startup period with adequate labor and support personnel to adjust equipment and troubleshoot system failures that might arise.
- B. When a piece of electrical or mechanical equipment is found to be in conflict with specific criteria, an experienced representative of the manufacturer shall adjust the item.
- C. If adjustments fail to correct the operation of a piece of equipment or fixture, the Contractor shall remove the equipment or fixture from the Project site and replace it with a workable replacement that meets the specification requirements.
- D. The 30-day startup period shall commence thirty (30) days prior to the Contract completion date and shall be completed prior to final payment. If, during the startup, any system fails to operate in accordance with Contract requirements, the failure shall be corrected and the startup period shall begin again.
  - 1. At the end of the startup period, all filters shall be replaced with new ones.
  - 2. The City may provide, at its option, a Commissioning Representative to observe or participate in the startup and testing of any system. The Contractor shall coordinate with the Commissioning Representative relating to scheduling, reporting, forms, methods, and procedures of the startup and testing.

# 3.03 FINAL INSTRUCTIONS AND OPERATION TRAINING

- A. After startup and testing is completed, the Contractor shall demonstrate to the City's personnel the proper manner of operating the equipment, programming messages, making adjustments, responding to alarms and emergency signals, and maintaining the system.
- B. The Contractor shall provide on-the-job training by a suitably qualified instructor to

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 017515 - SYSTEM STARTUP, TESTING AND TRAINING

designated personnel and shall instruct them in the operation and maintenance of the systems. In the event qualified instructors on the Contractor's staff are not available, the Contractor shall arrange with the equipment manufacturer for such instruction at no additional cost to the City.

- C. The Contractor shall provide a minimum of eight (8) hours of operator training to the Airport per shift. Classes shall accommodate up to five (5) people at a time with up to two (2) separate courses (one for each shift).
- D. The Contractor shall provide a syllabus to the DEN Project Manager at least seven (7) calendar days prior to the start of each course that outlines topics to be covered, the proposed time allotted to each topic, and the target audience of the training session (technical, casual operator, overview, etc.). The Contractor shall not commence any training courses until the syllabus has been reviewed and approved by the DEN Project Manager.
- E. The contractor shall provide instruction for obtaining live help for questions relating operation and troubleshooting.

# PART 4 - MEASUREMENT

# 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

# PART 5 - PAYMENT

# 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

# END OF SECTION 017515

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 017720 - CONTRACT CLOSEOUT

# **SECTION 017720**

# CONTRACT CLOSEOUT

## PART 1 - GENERAL

# 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Special Sections, apply to this Section.

## 1.02 SUMMARY

- A. Work specified in this Section includes procedures required prior to Final Acceptance of the Work in addition to those specified in Title 20 – Final Completion and Acceptance of The Work in the General Contract Conditions, 2011 Edition, and Technical Specification Section 017840 "Contract Record Documents".
- B. This Section also includes procedures and penalties to ensure prompt completion of the Project Closeout.
- C. Related Sections:
  - 1. Title 20 of the General Contract Conditions, 2011 Edition..
  - 2. Section 017840 "Contract Record Documents" for required record documents.
  - 3. Form CM-75, Closeout Checklist
- D. SUBMITTALS
  - 1. Submit written Certification to the DEN Project Manager that, in the opinion of the Contractor, the Work is complete.
  - 2. Submit final survey within 60 days after issuance of Substantial Completion.
  - 3. Submit a Final Statement of Accounting to the DEN Project Manager.

# PART 2 - PRODUCTS (NOT USED)

## PART 3 - EXECUTION

## 3.01 PREPARATION FOR FINAL INSPECTION

- A. Before requesting inspection for Final Acceptance of the Work by the City, the Contractor shall inspect, clean, and repair the Work as required.
- B. The Contractor shall ensure that all items on the Closeout Checklist have been addressed and accepted by the DEN Project Manager.

## 3.02 FINAL INSPECTION

- A. The Contractor shall submit written certification to the DEN Project Manager when, in the opinion of the Contractor, the Work is complete. Such communication shall certify that:
  - 1. The Work has been inspected by the Contractor for conformance with the Contract Documents.

| TECHNICAL SPECIFICATIONS           |
|------------------------------------|
| DIVISION 01 – GENERAL REQUIREMENTS |
| SECTION 017720 - CONTRACT CLOSEOUT |

- 2. The Work has been completed in conformance with the Contract Documents, including all punchlist items.
- 3. The Work is ready for final inspection by the City.
- 4. All as-built documents have been submitted and accepted.
- 5. All damaged or destroyed real, personal, public, or private property impacted by the Work has been repaired or replaced.
- 6. All Warranties and Bonds have been completed, executed, submitted, and accepted.
- 7. All personnel badges and vehicle permits have been returned to DEN Airport Security.
- B. The DEN Project Manager will inspect the Work in accordance with the Section 2002.1 of the City and County of Denver's Department of Aviation's General Contract Conditions.
- C. If the DEN Project Manager finds incomplete or defective Work:
  - 1. The DEN Project Manager may, at the DEN Project Manager's sole discretion, either terminate the inspection, or prepare a punchlist and notify the Contractor in writing, listing the incomplete or defective Work.
  - 2. The Contractor shall take immediate steps to remedy all identified deficiencies and resubmit a written certification to the DEN Project Manager that Work is complete.
  - 3. The DEN Project Manager will then re-inspect the Work.

# 3.03 REINSPECTION FEES

- A. Should the DEN Project Manager be required to perform re-inspections of the Work due to the Contractor prematurely claiming the status of the Work to be complete:
  - 1. The Contractor shall compensate the City for such additional services at the per-hour rates defined below, for the time spent by the DEN Project Manager on re-inspection and related work, with a minimum charge of \$250:

| Position                    | Rate  |
|-----------------------------|-------|
| Project Manager             | \$150 |
| Quality Assurance Inspector | \$125 |
| Commissioning Agent         | \$125 |

2. The City shall deduct the amount of such compensation from the final payment to the Contractor.

# 3.04 FINAL SURVEY FEES

- A. The Contractor shall complete and submit the final survey within 60 days after issuance of Substantial Completion. If the Contractor fails to complete and submit the final survey within this time frame it is understood that DEN will arrange for a qualified surveying company to complete this work at the Contractor's expense. All costs associated with DEN arranging for and completing the final survey will be deducted from the final payment including compensation due the City for the DEN Project Manager's time to manage this work.
  - 1. The DEN Project Manager's rate of compensation shall be set at \$150.00 per manhour.
  - 2. Survey submittals needing to be revised may extend the 60-day time frame at the DEN Project Manager's discretion.
  - 3. Costs, including the DEN Project Manager's, for the review of the resubmitted survey shall be deducted from the final payment.

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 017720 - CONTRACT CLOSEOUT

# 3.05 LATE CLOSEOUT FEES

- A. Within 100 days after issuance of substantial completion, all documentation required by this Contract to achieve Project Closeout shall be submitted. Failure to submit all required documentation shall result in fees to compensate the City for project management work while the project remains open. These shall be assessed if no liquidated damages are provided or and paid for late completion.
  - 1. Fees at the rate of \$450 per day to compensate for additional DEN Project Manager, consultant, and other personnel's work.
  - 2. The resubmittal of required documents may extend the 100-day time frame at the DEN Project Manager's discretion.

# 3.06 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit a Final Statement of Accounting to the DEN Project Manager.
- B. The Final Statement of Accounting shall reflect all adjustments to the Contract amount and shall include the following:
  - 1. The original Contract Value.
  - 2. Additions and deductions resulting from the following:
    - a. Approved Change Orders.
    - b. Allowances.
    - c. Final quantities for unit price items, including required backup for the quantities.
    - d. Deductions for corrected work.
    - e. Penalties.
    - f. Deductions for liquidated damages.
    - g. Deductions for re-inspection payments.
    - h. Other adjustments.
  - 3. Total Contract Value, as adjusted.
  - 4. Previous payments.
  - 5. Sum remaining due.
- C. If required, the DEN Project Manager will prepare a final Change Order, reflecting the approved adjustments to the Contract Value that were not included in previously issued Change Orders.

## 3.07 FINAL APPLICATION FOR PAYMENT

A. The Contractor shall submit the final application for payment in accordance with the procedures and requirements detailed in Article 2003, Final Settlement in the General Contract Conditions, 2011 Edition.

## PART 4 - MEASUREMENT

## 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 017720 - CONTRACT CLOSEOUT

# 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

## **END OF SECTION 017720**

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 017825 - OPERATION AND MAINTENANCE DATA

# **SECTION 017825**

## **OPERATION AND MAINTENANCE DATA**

## PART 1 - GENERAL

## 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

## 1.02 SUMMARY

- A. The Work specified in this Section consists of preparing and submitting operation and maintenance data for mechanical, electrical, and other specified equipment/products.
- B. Coordinate all the requirements of the required data with DEN Asset Management.

## 1.03 SUBMITTALS

- A. Refer to Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples" for submittal procedures.
- B. All submittals must be provided in electronic data as indicated by the DEN Building Information Modeling (BIM) Design Standards Manual (DSM) and as required by the DEN BIM and DEN Asset Management groups.
- C. Submit one (1) electronic copy and three (3) bound hard copies of the proposed Operation and Maintenance Data Manual not less than 30 days prior to acceptance tests and final inspection.
  - 1. The submitted copies shall provide the Information following the MasterFormat standard. Equipment/Data shall be organized using Section formatting within the 50 MasterFormat Divisions.
- D. Submit one (1) electronic copy and three (3) bound hard copies of Operation and Maintenance Data Manual within ten days after system startup is complete. These copies shall incorporate any comments made on the previous submittals, along with final readings on all settings and gauges taken while the system is in fully satisfactory operation.

## 1.04 CONTINUOUS UPDATING PROGRAM

A. Furnish to DEN AIM Asset Management one (1) electronic copy of the Contractor's letter indicating that suppliers have been notified to provide updated operation and maintenance data, service bulletins, and other information pertinent to the equipment to DEN, as it becomes available.

## PART 2 - PRODUCTS

## 2.01 OPERATIONS AND MAINTENANCE MANUAL REQUIREMENTS

- A. The following products are the requirements of hard copies:
  - 1. Paper size:  $8-\frac{1}{2}$  inches x 11 inches.
  - 2. Paper: White bond, at least 20-pound weight.

3.

| TECHNICAL SPECIFICATIONS                        |
|---|
| DIVISION 01 – GENERAL REQUIREMENTS              |
| SECTION 017825 - OPERATION AND MAINTENANCE DATA |

Text: Typewritten.

- 4. Printed data: Manufacturer's catalog cuts, brochures, operation, and maintenance data. Clear reproductions thereof will be acceptable. If this data is in color, all final manuals must contain color data.
- 5. Drawings: 8½ inches x 11 inches, bound with the text. Larger drawings are acceptable provided they are folded to fit into a pocket inside the rear cover of the manual. Reinforce edges of large drawings.
- 6. Prints of drawings: Black ink on white paper, sharp in detail and suitable for making reproductions.
- 7. Flysheets: Separate each portion of the manual with colored, neatly prepared flysheets briefly describing the contents of the ensuing portion.
- 8. Covers: Provide 40 to 50 mil, clear plastic, front and plain back covers for each manual. The front covers shall contain the information required in paragraph 3.2 below.
- 9. Bindings: Conceal the binding mechanism inside the manual. Lockable 3-ring binders shall be provided.
- Training Videos: Provide in digital electronic format as per current DEN requirements.
   a. Refer to Section 017900 Demonstration and Training for video requirements.

# PART 3 - EXECUTION

# 3.01 GENERAL

A. Assemble each operation and maintenance manual using the manufacturer's latest standard commercial data, and include all additional information that is unique to the Project.

# 3.02 COVER

- A. Include the following information on the front cover and on the inside cover sheet:
  - 1. Operation and maintenance instructions.
  - 2. Title of structure or facility.
  - 3. Title and number of Contract.
  - 4. Contractor's name and address.
  - 5. General subject of the manual.

# 3.03 CONTENTS OF THE MANUAL

- A. Table of Contents, which references, at a minimum, three heading levels.
- B. Index of Equipment/Data with entries for equipment type and MasterFormat Division and Section.
- C. A Master Index that contains index entries for all submitted Operation and Maintenance Data Manuals.
  - 1. Equipment/Data shall be indexed by equipment type and MasterFormat Division and Section.
  - 2. Name, address, and telephone numbers of Contractor, suppliers and installers along with the manufacturer's order number and description of the order.

| TECHNICAL SPECIFICATIONS                        |
|---|
| DIVISION 01 – GENERAL REQUIREMENTS              |
| SECTION 017825 - OPERATION AND MAINTENANCE DATA |

3. Name, address, and telephone numbers of manufacturer's nearest service representatives.

- 4. Name, address, and telephone number of nearest parts vendor and service agency.
- 5. Copy of guaranties and warranties issued to, and executed in the name of, the City.
- 6. Anticipated date the City assumes responsibility for maintenance.
- 7. Description of system and component parts including theory of operation.
- 8. Pre operation check or inspection list.
- 9. Procedures for starting, operating, and stopping equipment.
- 10. Post operation check or shutdown list.
- 11. Inspection and adjustment procedures.
- 12. Troubleshooting and fault isolation procedures for on-site level of repair.
- 13. Emergency operating instructions.
- 14. Accepted test data.
- 15. Maintenance schedules and procedures.
- 16. Test procedures to verify the adequacy of repairs.
- 17. One (1) copy of each wiring diagram.
- 18. One (1) copy of each piping diagram.
- 19. Location where all measurements are to be made.
- 20. One (1) copy of each duct diagram.
- 21. One (1) copy of control diagram.
- 22. One (1) copy of each accepted shop drawing.
- 23. One (1) copy of software programs imputable or changeable on site.
- 24. Ordering information.
- 25. Training course material used to train DEN staff, including slides and other presentation material.
- 26. Provide the following information, unless the item is covered in the Manufacturer's Operation and Manual:
  - a. Manufacturer's parts list with catalog names, numbers, and illustrations.
  - b. A list of components that are replaceable by the City.
  - c. An exploded view of each piece of the equipment with part designations.
  - d. List of manufacturer's recommended spare parts, current prices, and recommended quantities for two years of operation.
  - e. List of special tools and test equipment required for the operation, maintenance, adjustment, testing and repair of the equipment, instruments and components.
  - f. Scale and corrosion control procedures.
  - g. Disassembly and re-assembly instructions.
  - h. Troubleshooting and repair instructions.
  - i. Calibration procedures.

## PART 4 - MEASUREMENT

# 4.01 METHOD OF MEASUREMENT

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 017825 - OPERATION AND MAINTENANCE DATA

A. No separate measurement shall be made for work under this Section.

## PART 5 - PAYMENT

## 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

## END OF SECTION 017825

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 017835 - WARRANTIES AND BONDS

# **SECTION 017835**

## WARRANTIES AND BONDS

## PART 1 - GENERAL

## 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

A. The Work specified in this Section consists of preparing and submitting warranties and bonds required by the Contract and these Specifications.

## 1.03 SUBMITTALS

- A. Refer to Technical Specifications Section 013300 "Submittal Procedures" and Section 013325 "Shop and Working Drawings, Product Data and Samples" for submittal procedures.
  - 1. All warranties shall be executed or transmitted to the City and County of Denver.
  - 2. Photocopies or reproductions of stock manufacturer's warranties will not be accepted, although electronic copies are acceptable when the manufacturer's warranty is contained in the O&M manual.
- B. Submit samples of warranties and bonds for review by the City prior to execution of Work. Do not submit final warranties until sample warranties have been approved by the City.
  - 1. Submit the warranties and bonds required by the Contract Documents.
  - 2. Prepare and submit a list of all warranties and bonds on the following forms:
    - a. CM-10: Contractor Warranty
    - b. CM-11: Contractor/Sub-Contractor Warranty
- C. Submit executed warranties and bonds.

## PART 2 - PRODUCTS (NOT USED)

## PART 3 - EXECUTION

#### 3.01 WARRANTIES AND BONDS

- A. Submit executed warranties and bonds required by the Contract Documents, as detailed in Title 15 Performance and Payment Bonds and Title 18 Warranties, Guarantees, and Corrective Work in the General Contract Conditions, 2011 Edition.
  - 1. Prepare and submit a list of all warranties and bonds on the following forms:
    - a. CM-10, Contractor Warranty
    - b. CM-11, Contractor/Sub-Contractor Warranty

## PART 4 - MEASUREMENT

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 017835 - WARRANTIES AND BONDS

# 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

#### PART 5 - PAYMENT

## 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

## END OF SECTION 017835



Contractor:

Work - means all work performed by the Contractor under the contract referred to above.

City - means the City and County of Denver, Colorado

Contract Documents - means contract documents for the DEN contract between the City and the contractor referred to above.

## I. CONTRACTOR'S WARRANTIES AND CORRECTION WORK

A. The contractor warrants to the City that all parts, materials, components, equipment, and other items incorporated into the Work are new, unless otherwise specified, and are suitable for the purpose used, are of good quality, are free from faults and defects, and are in conformance with the contract documents. The contractor also warrants that its workers are sufficiently skilled to produce quality Work free from faults and defects. Work not so conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The contractor, when requested, shall furnish the City with satisfactory evidence as to the kind and quality of materials and equipment incorporated into the Work. The contractor further warrants that the construction processes and methods employed to perform the Work have in the past proven to be suitable for the results expected.

B. The contractor further warrants that it has full title to all parts, materials, components, equipment, and other items conveyed to the City under the terms of this contract, that its transfer of such title to the City is rightful, and that all such parts, materials, components, equipment, and other items shall be transferred free and clear from all security interests, liens, or encumbrances whatsoever. The contractor agrees to warrant and defend such title against all persons claiming the whole, or any part thereof, at no cost to the City.

C. The contractor shall promptly investigate, repair, replace or otherwise correct any of its workmanship and any parts, materials, components, equipment, or other items incorporated into the Work which contain faults or defects whether such failures are observed by the City or the contractor at any time during the contract term or during the warranty period. The contractor shall bear all costs of investigating and correcting, which includes the design efforts necessary to correct such Work covered by the warranty as described under the 2011 edition of the General Contract Conditions, Title 18 or elsewhere in the contract documents. If repair or replacement of faulty items of the Work is necessary, proper temporary substitutes shall be provided by the contractor in order to maintain the progress of the Work and/or keep systems operating without any additional costs to the City. The obligations of this Contractor Warranty shall survive termination of the contract under the provisions of the 2011 edition of the General Contract Conditions, Title 22. Nothing herein shall limit the City's right to seek recovery for latent defects that are not observable until after the warranty periods have run.

- D. The contractor's warranty for all Work components shall continue for the following period:
  - 1. For a period of one (1) year after the date of Substantial Completion or for such longer period of time as may be prescribed by the terms of any special warranties required by the contract documents.



E. Nothing contained in this Contractor Warranty shall be construed to establish a period of limitation with respect to any other obligation that the contractor might have under the contract documents. The establishment of the warranty period set forth above relates only to the specific obligation of the contractor to correct the Work and has no relationship to the time within which its obligation to comply with the contract documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the contractor's liability with respect to its obligations and resulting damages other than specifically to correct the Work.

F. The contractor, at its own expense, shall also investigate, repair, or replace any damages to any equipment, facilities, or other personal or real property owned or leased by the City which is damaged as a result of any such fault or defect in the Work with no cost to the City.

G. All subcontractor's, manufacturer's, and supplier's warranties, express or implied, for any part of the Work and any materials used therein, shall be obtained and enforced by the contractor for the benefit of the City whether or not these warranties have been assigned or otherwise transferred to the City. The contractor shall assign or transfer such warranties to the City if the City requests the contractor to do so, but such transfer shall not affect the contractor's obligation to enforce such warranties. These warranties are listed at the end of this document and attached hereto.

# II. PERFORMANCE DURING WARRANTY PERIOD

A. The City will notify the contractor of Work found to be defective and fails to satisfy the warranties as described the 2011 edition of the General Contract Conditions, Article 18, Section 1801, or elsewhere in the contract documents. The contractor shall, within ten (10) days or such longer time as may be requested and set forth in the notice, commence the repair, replacement, or correction of the defective work. Should the contractor fail to complete such Work within a reasonable period, the City may make the repairs or replacements at the expense of the contractor. If the City determines that immediate action to make repairs, replacements, or other corrections is necessary because of emergency conditions or to prevent further loss or damage, the City may proceed without notice to the contractor, but at the expense of the contractor.

B. If the contractor does not proceed with the correction of such defective work within the time fixed by written notice from the Project Manager, or in an emergency condition, the City may remove the defective work and may store the materials or equipment at the expense of the contractor. If the contractor does not pay the cost of the removal and storage within ten (10) days thereafter, the City may, upon ten (10) additional days written notice, sell the stored Work at auction.

C. If the proceeds of any such sale do not cover all costs which the City has incurred and which the contractor should have borne, the difference shall be charged to the contractor and the contractor and its surety shall be liable for and pay the difference to the City.

D. If the contractor does not agree that the Work is defective or the defective work is its responsibility and if there are no emergency conditions, the contractor may request review, in writing, of the City's decision in accordance with the 2011 edition of the General Contract Conditions, Title 13. If such review is not requested within ten (10) days of the notification of defective work, the contractor shall have waived the right to contest its responsibility for the correction of the defective work. Under emergency conditions, the contractor shall immediately correct the alleged defective work, and the question of responsibility for the expense shall be



determined by the Deputy Manager of Aviation, subject to the right of the contractor to seek review, within ten (10) days of the City's notice allocating responsibility for the expense.

E. Should the City claim by written communication sent or mailed before the warranty period expires that certain defective work exists and that it requires repair or replacement, the warranty period for such defective work shall be automatically extended for as long as that defective work exists.

# III. CONTRACTOR'S SPECIAL EXTENDED WARRANTIES AND OTHER WARRANTIES REQUIRED BY THE TECHNICAL SPECIFICATIONS.

(Copies of applicable pages from the technical specifications are attached.)

The list below represents contractor warranty requirements and warranty periods specifically required by the contract document technical specifications. The fact that warranty requirements or warranty periods for all work performed by the contractor are not listed in the technical specifications does not affect or limit the contractor's general warranty described in paragraph I of this Contractor Warranty.

| Specification Number | Specification Title | Warranty Period |
|----------------------|---------------------|-----------------|
|                      |                     |                 |
| <u> </u>             |                     |                 |
| <u> </u>             |                     |                 |
|                      |                     |                 |
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| <u> </u>             |                     |                 |
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|                      |                     |                 |

## IV. MANUFACTURER WARRANTIES REQUIRED BY THE TECHNICAL SPECIFICATIONS

(Copies of applicable pages from the technical specifications are attached.)

The list below represents the manufacturer's warranties specifically required by the contract documents. These warranties are attached.

| Specification Number | Specification Title | Warranty Period |
|----------------------|---------------------|-----------------|
|                      |                     |                 |
|                      |                     |                 |
|                      |                     |                 |
| <u> </u>             |                     | <u> </u>        |
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|                      |                     |                 |
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# ASSIGNMENT OF WARRANTY

The contractor hereby assigns this Contractor Warranty, special extended warranties, and manufacturer's warranties listed above, and attached hereto, to the City (except those that may be listed below), but such assignment shall not affect the contractor's obligation to enforce such warranty as provided under paragraph I.G above of this Contractor Warranty and such assignment does not affect the contractor's warranties described elsewhere in the contract documents.

## **Contractor:**

Title:

By:

Date:

| DEN<br>CONTRACT NAME:<br>CONTRACT/TASK NO. | CONTRACTOR / SUBCONTRACTOR WARRANTY |
|--|-------------------------------------|
| Subcontract No.:                           |                                     |
| Contractor:                                |                                     |
| Subcontractor:                             |                                     |
| Description:                               |                                     |

Work – means all work performed by the Contractor under the contract referred to above.

City – means the City and County of Denver, Colorado

Contract Documents – means contract documents for the DEN contract between the City and the contractor referred to above.

Subcontract Documents – means subcontract documents for the subcontract between the contractor and subcontractor referred to above.

# I. SUBCONTRACTOR'S WARRANTIES AND CORRECTION WORK

A. The subcontractor warrants to the contractor that all parts, materials, components, equipment, systems and other items incorporated into the Work are new, unless otherwise specified, and are suitable for the purpose used, are of good quality, are free from faults and defects, and are in conformance with the subcontract documents. The subcontractor also warrants that its workers are sufficiently skilled to produce quality work free from faults and defects. Work not so conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The subcontractor, when requested, shall furnish the contractor with satisfactory evidence as to the kind and quality of materials and equipment incorporated into the Work. The subcontractor further warrants that the construction processes and methods employed to perform the Work have in the past proven to be suitable for the results expected.

B. The subcontractor further warrants that it has full title to all parts, materials, components, equipment and other items conveyed to the contractor under the terms of this subcontract, that its transfer of such title to the contractor is rightful, and that all such parts, materials, components, equipment and other items shall be transferred free and clear from all security interests, liens or encumbrances whatsoever. The subcontractor agrees to warrant and defend such title against all persons claiming the whole, or any part thereof, at no cost to the contractor.

C. The subcontractor shall promptly investigate, repair, replace or otherwise correct any of its workmanship and any parts, materials, components, equipment or other items incorporated into the Work which contain faults or defects whether such failures are observed by the City or the contractor at any time during the subcontract term or during the warranty period. The subcontractor shall bear all costs of investigating and correcting, which includes the design efforts necessary to correct such Work covered by the warranty as described under the 2011 edition of the General Contract Conditions, Title 18 or elsewhere in the subcontract documents. If repair or replacement of faulty items of the Work is necessary, proper temporary substitutions shall be provided by the subcontractor or the City. The obligations of this Subcontractor Warranty shall survive termination of the subcontract under the provisions of the 2011 edition of the General Contract Conditions, Title 22. Nothing herein shall limit the contractor's right to seek recovery for latent defects that are not observable until after the warranty periods have run.



**CONTRACTOR / SUBCONTRACTOR WARRANTY** 

- D. The subcontractor's warranty for all Work components shall continue for the following period:
  - 1. For a period of one (1) year after the date of Substantial Completion or for such longer period of time as may be prescribed by the terms of any special warranties required by the subcontract documents.

E. Nothing contained in this Subcontractor Warranty shall be construed to establish a period of limitation with respect to any other obligation that the subcontractor might have under the subcontract documents. The establishment of the warranty period set forth above relates only to the specific obligation of the subcontractor to correct the Work and has no relationship to the time within which its obligation to comply with the subcontract documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the subcontractor's liability with respect to its obligations and resulting damages other than specifically to correct the Work.

F. The subcontractor, at its own expense, shall also investigate, repair or replace any damages to any equipment, facilities or other personal or real property owned or leased by the contractor or the City which is damaged as a result of any such fault or defect in the Work with no cost to the contractor or the City.

G. All subcontractor's sub-tier subcontractors, manufacturer's and supplier's warranties, express or implied, for any part of the Work and any materials used therein, shall be obtained and enforced by the subcontractor for the benefit of the City whether or not these warranties have been assigned or otherwise transferred to the contractor or the City. The subcontractor shall assign or transfer such warranties to the contractor or the City if the contractor requests the subcontractor to do so, but such transfer shall not affect the subcontractor's obligation to enforce such warranties. These warranties are listed at the end of this document and attached hereto.

# II. PERFORMANCE DURING WARRANTY PERIOD

A. The contractor will notify the subcontractor of Work found to be defective and fails to satisfy the warranties as described in the 2011 edition of the General Contract Conditions, Article 18, Section 1801, or elsewhere in the subcontract documents. The subcontractor shall, within ten (10) days or such longer time as may be requested and set forth in the notice, commence the repair, replacement or correction of the defective work. Should the subcontractor fail to complete such Work within a reasonable period, the contractor may make the repairs or replacements at the expense of the subcontractor. If the contractor determines that immediate action to make repairs, replacements or other corrections is necessary because of emergency conditions or to prevent further loss or damage, the contractor may proceed without notice to the subcontractor, but at the expense of the subcontractor.

B. If the subcontractor does not proceed with the correction of such defective work within the time fixed by written notice from the contractor, or in an emergency condition, the contractor may remove the defective work and may store the materials or equipment at the expense of the subcontractor. If the subcontractor does not pay the cost of the removal and storage within ten (10) days thereafter, the contractor may, upon ten (10) additional days written notice, sell the stored Work at auction.

C. If the proceeds of any such sale do not cover all costs which the contractor has incurred and which the subcontractor should have borne, the difference shall be charged to the subcontractor and the subcontractor and its surety shall be liable for and pay the difference to the contractor.

D. If the subcontractor does not agree that the work is defective or the defective work is its responsibility and if there are no emergency conditions, the subcontractor may request, in writing, a review of the contractor's



# **CONTRACTOR / SUBCONTRACTOR WARRANTY**

decision in accordance with the 2011 edition of the General Contract Conditions, Title 13. If such review is not requested within ten (10) days of the notification of defective work, the subcontractor shall have waived the right to contest its responsibility for the correction of the defective work. Under emergency conditions, the subcontractor shall immediately correct the alleged defective work, and the question of responsibility for the expense shall be determined by the contractor, subject to the right of the subcontractor to seek review, within ten (10) days of the contractor's notice allocating responsibility for the expense.

E. Should the contractor claim by written communication sent or mailed before the warranty period expires that certain defective work exists and that it requires repair or replacement, the warranty period for such defective work shall be automatically extended for as long as that defective work exists.

# III. SUBCONTRACTOR'S SPECIAL EXTENDED WARRANTIES AND OTHER WARRANTIES REQUIRED BY THE TECHNICAL SPECIFICATIONS

(Copies of applicable pages from the Technical Specifications are attached.)

The list below represents subcontractor warranty requirements and warranty periods specifically required by the subcontract document technical specifications. The fact that warranty requirements or warranty periods for all work performed by the subcontractor are not listed in the technical specifications does not affect or limit the subcontractor's general warranty described in paragraph I of this Subcontractor Warranty.

Specification Number

Specification Title

Warranty Period

#### **IV. MANUFACTURER WARRANTIES REQUIRED BY THE TECHNICAL SPECIFICATIONS** (Copies of applicable pages from the Technical Specifications are attached.)

The list below represents the manufacturer's warranties specifically required by the contract documents. These warranties are attached.

Specification Number

Specification Title

Warranty Period

Subcontractor:

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_



**CONTRACTOR / SUBCONTRACTOR WARRANTY** 

# ASSIGNMENT OF WARRANTY

The subcontractor hereby assigns this Subcontractor Warranty, special extended warranties and manufacturer's warranties listed above, and attached hereto, to the contractor (except those that may be listed below), but such assignment shall not affect the subcontractor's obligation to enforce such warranty as provided under paragraph I.G above of this Subcontractor Warranty and such assignment does not affect the subcontractor's warranties described elsewhere in the contract documents.

## Subcontractor:

| By:    |  |  |  |
|--------|--|--|--|
|        |  |  |  |
| Title: |  |  |  |

| Date: |  |  |  |
|-------|--|--|--|

# **Contractor:**

By: \_\_\_\_\_

| Title: |
|--------|
|--------|

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 017840 - CONTRACT RECORD DOCUMENTS

# **SECTION 017840**

# CONTRACT RECORD DOCUMENTS

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. The Work specified in this Section consists of maintaining, marking, recording, and submitting Contract Record Documents that include shop drawings, warranties, and contractor records. Creating and providing to DEN these documents are part of the Work and become part of the Contract Documents.
- B. Refer to DEN Building Information Modeling (BIM) Design Standards Manual (DSM) and Approved BIM execution for data format and file types acceptable for different type of data.
- C. Related Requirements:
  - 1. Section 013100 "Project Management and Coordination".
  - 2. Section 013223 "Construction Layout, As-built and Quantity Surveys".
  - 3. Section 013300 "Submittal Procedures".
  - 4. Section 013325 "Shop and Working Drawings, Product Data and Samples".
  - 5. Section 017720 "Contract Closeout".
  - 6. Section 017825 "Operation and Maintenance Data".

#### 1.03 SUBMITTALS

- A. Each submittal of record documents shall contain the following information:
  - 1. Date.
  - 2. Project title and numbers.
  - 3. Contractor's name and address.
  - 4. Title and number of each record document.
  - 5. Certification that each document as submitted is complete and accurate.
  - 6. Signature of the Contractor or the Contractor's authorized representative.
- B. At the completion of this Contract, deliver all record documents including the following:
  - 1. As-built shop drawings, diagrams, illustrations, schedules, charts, brochures and other similar data.
  - 2. Warranties, guarantees, and bonds.
  - 3. Contract Documents.
  - 4. Contractor records.
- C. As-built Contract Drawings shall be submitted with each monthly progress payment

| TECHNICAL SPECIFICATIONS                   |
|--|
| DIVISION 01 – GENERAL REQUIREMENTS         |
| SECTION 017840 - CONTRACT RECORD DOCUMENTS |

application, and a complete set shall be submitted prior to final payment.

- 1. The Contractor shall provide a single electronic copy of each Contract drawing sheet which has been used to produce work during the payment period or work that payment is being requested on, which records the current as-built conditions of work, including the posting of any change orders or change directives not shown on the Contract Documents at the time of Contract signing.
  - a. The Contractor must show as-built work completed through the payment application date including but not limited to utilities, empty conduit, conduit for actual electrical lines, plumbing, HVAC, location of anchor bolts and support points for use by others.
  - b. The Contractor shall be liable for any costs incurred by the City or a third party due to errors or lack of information provided on the as-built drawings.
  - c. All markings on drawings shall be legible to identify the portion of work completed.
  - d. For projects utilizing BIM system by the Contractor or a consultant of the Contractor, all data formats shall be compatible and as approved by the BIM execution plan as required in the DEN BIM DSM.

# 1.04 QUALITY CONTROL

- A. Submit electronically scanned copies of all documents required by Chapter 17 "Special Inspection and Testing" of the International Building Code 2009 as amended by City and County of Denver 2011. Keep scale and clarify dimension where electronic copies are not as originally scaled and dimensioned.
- B. For projects utilizing BIM for Revit, follow approved BIM execution plan and DEN BIM DSM for record documents, formats, and quality control and assurance procedures.

# PART 2 - PRODUCTS (NOT USED)

# **PART 3 - EXECUTION**

# 3.01 MAINTENANCE OF DOCUMENTS

- A. The Contractor must follow all the procedures established in the Contract Documents and DEN BIM DSM.
- B. The Contractor shall maintain at the work site on a current basis one (1) record copy of all drawings, specifications, addenda, change orders, approved shop drawings, working drawings, product data and samples in good order and marked currently to record all changes made during construction.
- C. Maintain at the field office one copy of the following record documents:
  - 1. Contract Documents:
    - a. Contract Drawings with all clarifications, requests for information, directives, changes, and as-built conditions clearly posted.
    - b. Contract Specifications with all clarifications, requests for information, changes, directives and record of manufacturer actually used along with product trade name.
    - c. Reference Standards in accordance with Section 014225 "Referenced Standards".
    - d. Affirmative Action Plan and documents.
    - e. One (1) set of drawings to record the following:

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|---------|---------|---|--|--|
| DIVISIC | N 01 –  | PECIFICATIONS DENVER INTERNATIONAL AIRPORT<br>GENERAL REQUIREMENTS RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2   |  |  |
| SECTIC  | DN 0178 | B40 - CONTRACT RECORD DOCUMENTS         CONTRACT NO. 202476290           1)         Horizontal and vertical location of underground utilities affected by the Work.   |  |  |
|         |         | <ol> <li>Location of internal utilities; include valves, controls, conduit, duct work, switches, pressure reducers, size reducers, transitions, crosses, tees, filters, motors, heaters, dampers, regulators, safety devices, sensors, access doors and appurtenances that are concealed in the construction shall be shown with dimensions given from a visible and recognizable reference to the item being located in all three dimensions. The drawings shall also reference the applicable submittal for the item being located.</li> <li>Field changes of dimensions and details including as-built elevations and location (station and offset).</li> <li>Details not on original Contract Drawings but obtained through requests for information or by other communications with the City.</li> </ol> |  |  |
|         |         | 2. Contractor Records:  |  |  |
|         |         | a. Daily Quality Control Reports.   |  |  |
|         |         | <ul> <li>b. Certificates of compliance for materials used in construction.</li> <li>c. Completed inspection list.</li> </ul>  |  |  |
|         |         | <ul> <li>Completed inspection list.</li> <li>Inspection and test reports.</li> </ul>  |  |  |
|         |         | e. Test procedures.   |  |  |
|         |         | f. Qualification of personnel.  |  |  |
|         |         | g. Approved submittals.   |  |  |
|         |         | h. Material and equipment storage records.  |  |  |
|         |         | i. Safety Plan  |  |  |
|         |         | <ul> <li>j. Erosion, sediment, hazardous and quality plans.</li> <li>k. Hazardous material records.</li> </ul>  |  |  |
|         |         | I. First report of injuries.  |  |  |
| 3.02    | REG     | CORDINGS  |  |  |
|         | A.      | Label each document page or article "PROJECT RECORD" in two-inch high letters.  |  |  |
|         | В.      | Keep record documents current daily.  |  |  |
|         | C.      | Legibly mark copies of the Contract Drawings to record actual construction.   |  |  |
|         | D.      | Legibly mark up each Section of the specifications and Contract Drawings to record:   |  |  |
|         |         | <ol> <li>Manufacturer, trade name, catalog number and supplier of each product and item<br/>actually installed</li> </ol>   |  |  |
|         |         | <ol> <li>Changes made by change orders, requests for information, substitutions, and<br/>variations approved by submittals.</li> </ol>  |  |  |
| 3.03    | DO      | CUMENT MAINTENANCE  |  |  |
|         | A.      | Follow all the required processes of the approved BIM Execution Plan as approved by DEN for this specific project or in formats acceptable to DEN BIM management system.  |  |  |
|         | В.      | Do not use record documents for construction purposes.  |  |  |
|         | C.      | Make documents available for inspection by the DEN Project Manager and any others having jurisdiction.  |  |  |

# 3.04 MONTHLY REVIEW

A. Prior to any application for payment, the DEN Project Manager or the DEN Project

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 017840 - CONTRACT RECORD DOCUMENTS

Manager's designated representative will inspect the record documents to ensure that they are being maintained and contain the most current correct data with particular attention to as-built drawings.

A. If, during the inspection, the DEN Project Manager determines that the documents are not being maintained and kept current so they reflect as-built conditions, an amount may be withheld from the payment request and deducted from the Contract value to cover the City's cost of collecting, creating, and recording the as-built data. This cost will be determined based on \$100.00 per man-hour of effort.

# PART 4 - MEASUREMENT

# 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

# PART 5 - PAYMENT

# 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

# END OF SECTION 017840

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 017900 - DEMONSTRATION AND TRAINING

# **SECTION 017900**

# DEMONSTRATION AND TRAINING

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.02 SUMMARY

- A. Section includes administrative and procedural requirements for instructing City's personnel, including the following:
  - 1. Demonstration of operation of systems, subsystems, and equipment.
  - 2. Training in operation and maintenance of systems, subsystems, and equipment.
  - 3. Demonstration and training video recordings.

### 1.03 INFORMATIONAL SUBMITTALS

- A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructor's names for each training module. Include learning objective and outline for each training module.
  - 1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.
- B. Qualification Data: For facilitator and instructor.
- C. Attendance Record: For each training module, submit list of participants and length of instruction time.
- D. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

# 1.04 CLOSEOUT SUBMITTALS

A. Demonstration and Training Video Recordings are not required for this project.:

#### 1.05 QUALITY ASSURANCE

- A. Facilitator Qualifications: A firm or individual experienced in training or educating personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: A professional instructor/trainer who is experienced in operation and maintenance procedures and training.
- C. Pre-Instruction Conference: Conduct conference at Project site to comply with requirements in Section 014520 "Contractor Quality Control Program-FAA". Review methods and

| TECHNICAL SPECIFICATIONS                    |  |
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| DIVISION 01 – GENERAL REQUIREMENTS          |  |
| SECTION 017900 - DEMONSTRATION AND TRAINING |  |

procedures related to demonstration and training including, but not limited to, the following:

- 1. Inspect and discuss locations and other facilities required for instruction.
- 2. Review and finalize instruction schedule and verify availability of educational materials, instructor's personnel, audiovisual equipment, and facilities needed to avoid delays.
- 3. Review required content of instruction.
- 4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

### 1.06 COORDINATION

- A. Coordinate instruction schedule with City's operations. Adjust schedule as required to minimize disrupting City's operations and to ensure availability of City's personnel.
  - 1. Include multiple classes to accommodate various shifts, as necessary.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by DEN Project Manager.

# PART 2 - PRODUCTS

### 2.01 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:
  - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
    - a. System, subsystem, and equipment descriptions.
    - b. Performance and design criteria if Contractor is delegated design responsibility.
    - c. Operating standards.
    - d. Regulatory requirements.
    - e. Equipment function.
    - f. Operating characteristics.
    - g. Limiting conditions.
    - h. Performance curves.
  - 2. Documentation: Review the following items in detail:
    - a. Emergency manuals.
    - b. Operations manuals.
    - c. Maintenance manuals.
    - d. Project record documents.
    - e. Identification systems.

#### TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 017900 - DEMONSTRATION AND TRAINING

- f. Warranties and bonds.
- g. Maintenance service agreements and similar continuing commitments.
- 3. Emergencies: Include the following, as applicable:
  - a. Instructions on meaning of warnings, trouble indications, and error messages.
  - b. Instructions on stopping.
  - c. Shutdown instructions for each type of emergency.
  - d. Operating instructions for conditions outside of normal operating limits.
  - e. Sequences for electric or electronic systems.
  - f. Special operating instructions and procedures.
- 4. Operations: Include the following, as applicable:
  - a. Startup procedures.
  - b. Equipment or system break-in procedures.
  - c. Routine and normal operating instructions.
  - d. Regulation and control procedures.
  - e. Control sequences.
  - f. Safety procedures.
  - g. Instructions on stopping.
  - h. Normal shutdown instructions.
  - i. Operating procedures for emergencies.
  - j. Operating procedures for system, subsystem, or equipment failure.
  - k. Seasonal and weekend operating instructions.
  - I. Required sequences for electric or electronic systems.
  - m. Special operating instructions and procedures.
- 5. Adjustments: Include the following:
  - a. Alignments.
  - b. Checking adjustments.
  - c. Noise and vibration adjustments.
  - d. Economy and efficiency adjustments.
- 6. Troubleshooting: Include the following:
  - a. Diagnostic instructions.
  - b. Test and inspection procedures.
- 7. Maintenance: Include the following:
  - a. Inspection procedures.
  - b. Types of cleaning agents to be used and methods of cleaning.
  - c. List of cleaning agents and methods of cleaning detrimental to product.
  - d. Procedures for routine cleaning
  - e. Procedures for preventive maintenance.
  - f. Procedures for routine maintenance.
  - g. Instruction on use of special tools.
- 8. Repairs: Include the following:
  - a. Diagnosis instructions.
  - b. Repair instructions.
  - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
  - d. Instructions for identifying parts and components.
  - e. Review of spare parts needed for operation and maintenance.

TECHNICAL SPECIFICATIONS DIVISION 01 – GENERAL REQUIREMENTS SECTION 017900 - DEMONSTRATION AND TRAINING

# **PART 3 - EXECUTION**

### 3.01 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 017825 "Operation and Maintenance Data."
- B. Set up instructional equipment at instruction location.

#### 3.02 INSTRUCTION

- A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and City for number of participants, instruction times, and location.
- B. Engage qualified instructors to instruct City's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
  - 1. Contractor will furnish an instructor to describe basis of system design, operational requirements, criteria, and regulatory requirements.
  - 2. City will furnish an instructor to describe City's operational philosophy.
  - 3. DEN Project Manager will furnish Contractor with names and positions of DEN participants.
- C. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
  - 1. Schedule training with City, through DEN Project Manager, with at a minimum of thirty (30) days advance notice.
- D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.
- E. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a demonstration performance-based test.
- F. Cleanup: Collect used and leftover educational materials and give to DEN. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

#### PART 4 - MEASUREMENT

#### 4.01 METHOD OF MEASUREMENT

A. No separate measurement shall be made for work under this Section.

#### PART 5 - PAYMENT

#### 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

# END OF SECTION 017900

# SECTION 018113.16

#### SUSTAINABLE REQUIREMENTS

#### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This section includes general requirements and procedures for compliance with certain Institute for Sustainable Infrastructure (ISI) credits that are needed for the Project to obtain ENVISION "Verified" level of award verification based on the ISI's "Sustainable Infrastructure Framework Guidance Manual, v3" if pursued by DEN. This project will be evaluated for potential Envisions credits and target level of achievement only. ISI will not be part of the review process.
  - 1. Contractor must acknowledge and commit to the Project Sustainability Commitment Statement:
    - a. "As a key member of the Project, we are committed to strategically consider the long-term economic, social, and environmental impact of the activities associated with the design, construction, operation, and maintenance of the Project. We will work collaboratively to implement sustainable solutions that prioritize and improve health, safety, and access for all stakeholders; reduce energy consumption; provide in and engage DEN stakeholders to improve the long-term operation and maintenance of the project site; reduce construction-related impacts; provide sustainability awareness and insights to be applied to this and future DEN infrastructure projects.
  - 2. The Contractor is committed to revisiting the commitment statement throughout construction, supporting the implementation of Project sustainability goals, monitoring the performance of ISI ENVISION construction-related credits, and meeting requirements needed to obtain ENVISION credits.

# 1.3 ADMINISTRATIVE REQUIREMENTS

- A. Respond to questions and requests from the Engineer, DEN Project Manager regarding target ENVISION credits that are the responsibility of the Contractor, or that depend on the Contractor's procedures. All responses shall be documented as informational submittals.
- B. An ENVISION pre-work meeting will be scheduled by the DEN Project Manager within fourteen (14) days of NTP. The purpose of this meeting is to introduce the project team to the ENVISION related requirements outlined in this Section and discuss strategies to obtain ENVISION credits and establish ongoing communication on status.
- C. A post-construction assessment will be scheduled upon Substantial Completion. The purpose of this assessment will be a collaborate feedback session to document successes and opportunities for improvement as it relates to the ENVISION requirements of this Section.

#### 1.4 ACTION SUBMITTALS

- A. The Contractor shall propose a credentialed Envision Sustainability Professional (ENV-SP) to coordinate the ENVISION action submittals.
- B. ENVISION submittals are in addition to other submittals. If the submitted item is identical to that submitted to comply with other requirements, submit duplicate copies as a separate submittal to verify compliance with indicated ENVISION requirements.
- C. The Project target to achieve for ENVISION construction-related credits is <u>49 points</u>. The Contractor may elect to pursue different levels of achievement for each credit listed but total overall points must meet or exceed the Project target identified. The Contractor, together with their ENV-SP and DEN, will identify compliance strategies to meet the points that are needed as identified in this Section.
- D. Contractor shall submit supporting documentation for each credit listed below at the level of achievement identified. The supporting documentation shall be of the type and format which complies with the ISI's "Sustainable Infrastructure Framework Guidance Manual, v3". Example documents are listed below each credit but should be evaluated by the Contractor's ENV-SP as to the applicability and fulfillment of ENVISION requirements.
- E. ENVISION Credits and target level of achievement:
  - 1. QL1.3 Improve Construction Safety (Superior Level of Achievement)
    - a. Construction Site Specific Safety Plan (SSSP) and related policies and procedures to meet all DEN ROCIP, construction general safety, and security requirements as applicable.
    - b. Documentation of construction safety training program, site safety inspections, and safety communications.
    - c. Provide copy of any health and/or wellness programs provided to project employees.
  - 2. QL1.6: Minimize Construction Impacts (Superior Level of Achievement)
    - a. Provide documentation demonstrating implementation of CSPP strategies to mitigate construction impacts (i.e., intrusive lighting, vehicle and pedestrian wayfinding/safety, site access for operations).
    - b. Provide documentation from weekly CSPP Contractor progress meetings.
  - 3. LD1.1 Provide Effective Leadership and Commitment (Conserving Level of Achievement)
    - a. Documentation from the Contractor acknowledging the Project sustainability statement (section 1.2A,1,a).
    - b. Provide records of monitoring the performance of ISI Envision constructionrelated credits and commitments to sustainability (meeting minutes, progress reports).
    - c. Provide documentation related to organizational sustainability policies and reports, examples of other projects that integrate sustainability performance, business strategy goals related to sustainability, and third-party organizational recognition or commitments.
  - 4. RA1.4 Reduce Construction Waste (Superior Level of Achievement)
    - a. Provide a copy of the Construction Waste Management Plan.
    - b. Provide supporting waste management records and calculations to demonstrate a 75% total waste diversion rate. Complete and submit the attached RA1.4 Construction Waste Tracking Form.
  - 5. RA2.2 Reduce Construction Energy Consumption (Enhanced Level of Achievement)
    - a. Contractor to select two (2) construction energy reduction strategies that meet ISI Envision Framework requirements under credit RA2.2. Strategies selected are

|         | GENE                    | CATIONS DENVER INTERNATIONAL AIRPORT<br>RAL REQUIREMENTS RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2<br>- SUSTAINABLE REQUIREMENTS CONTRACT NO. 202476290  |
|---------|-------------------------|---|
|         |                         | subject to DEN review after the construction contract is awarded. DEN has pre-<br>reviewed recommendations to be considered and pursued by the construction<br>contractor:  |
|         |                         | <ol> <li>Alternative fuels in heavy equipment such as biodiesel for at least 5% of<br/>total fuel consumption. Documentation to support must include baseline fuel<br/>consumption, total fuel volume, and % of total fuel volume that comes from<br/>biofuels.</li> </ol>  |
|         |                         | <ul> <li>Offset electrical consumption by generating 5% renewable energy on-site<br/>(e.g. solar panels on trailer complex, solar-powered temporary light plant,<br/>solar-powered cameras, and variable message sign boards).</li> <li>Documentation to support must include the total electrical energy<br/>consumption baselines, and renewable energy percentage usage in site<br/>compares to the total energy consumption baseline to determine at least 5%<br/>renewable energy,</li> </ul>  |
|         |                         | <ol> <li>Purchase green power (RECs) for 30% of jobsite trailer energy consumption,</li> <li>Reduce purchased energy for job trailer consumption by 30% for two of the following: lighting, HVAC, and plug loads. The 30% reduction must apply individually to each of the categories.</li> </ol>   |
|         |                         | <ul> <li>b. Provide documentation including identification of two (2) energy reduction<br/>strategies, an implementation plan for selected strategies, calculation of normal<br/>estimated construction energy consumption rate, and estimates construction<br/>energy consumption rate with strategy implementation.</li> </ul>  |
|         | 6.                      | <ul> <li>RA3.3 Reduce Construction Water Consumption (Improved Level of Achievement)</li> <li>a. Contractor to select one (1) construction water reduction strategy that meet ISI Envision Framework requirements under credit RA3.3. Strategies selected are subject to DEN review after the construction contract is awarded. DEN has prereviewed recommendations to be considered and pursued by the construction contractor: <ol> <li>Dust suppression will use dry agents or non-potable water resulting in at least a 50% reduction in water use.</li> <li>High efficient fixtures in the construction trailer (e.g., low flow sink fixtures and toilets) that reduce water use by 40%.</li> </ol> </li> </ul>  |
|         |                         | <ol> <li>Develop a potable water leak monitoring and management system. This process could be added to general environmental site inspections.</li> <li>Contractor may self-select an alternative water reduction strategy that meets ISI Envision Framework requirements under credit RA3.3. Strategies selected are subject to DEN review after the construction contract is rewarded.</li> <li>If a self-selected strategy is implemented, the Contractor is to provide documentation of the implementation plan for the selected strategy, normal estimated water use rate, estimated water use rate with strategy implementation, and displaying an overall reduction in construction water consumption that meets the requirements of RA3.3.</li> </ol> |
|         | 7.                      | <ul><li>NW 2.4 Protect Surface &amp; Groundwater Quality (Improved Level of Achievement)</li><li>a. Provide a copy of the Spill Prevention, Control, and Countermeasures Plan (SPCC).</li></ul>   |
|         |                         | b. Site inspection records of stormwater management and spill controls measures.  |
| 1.5 INF | NFORMATIONAL SUBMITTALS |   |
| Α.      | Qua                     | lification Data: ENVISION Sustainability Professional (ENV-SP)  |

**B.** ENVISION Action Plans: Provide preliminary submittals within 30 days of date established for commencement of the Work, indicating how the requirements for each credit will be met.

- C. ENVISION Progress Reports: Concurrent with each Application for Payment or at least monthly, submit reports comparing actual construction and purchasing activities with ENVISION actions plans for the credit requirements, including at a minimum:
  - 1. Construction safety inspections and observations.
  - 2. Provide documentation showing tracking and implementation of the sustainability actions during construction.
  - 3. Waste diversion progress reports
  - 4. Salvaged, refurbished, and reused materials
  - 5. Energy consumption strategies
  - 6. Water reduction strategies

# 1.6 QUALITY ASSURANCE

A. ENVISION Sustainability Professional: Engage an experienced ENVISION credentialed professional to coordinate ENVISION requirements and sign off on the submittals.

### PART 2 - PRODUCTS

### 2.1 MATERIALS, GENERAL

A. Provide products and procedures necessary to obtain ENVISION credits outlined in this Section. Although other Sections may specify some requirements that contribute to ENVISION credits, the Contractor shall determine additional materials and procedures necessary to obtain ENVISION credits indicated.

#### PART 3 - EXECUTION

# 3.1 MEASUREMENT AND VERIFICATION

- A. Implement measurement and verification plan consistent to obtain ENVISION credits required in this Section.
  - 1. Total construction waste diversion rate calculations
  - 2. Total construction energy reduction calculations
  - 3. Total construction water reduction calculations

# PART 4 - MEASUREMENT

### 4.1 METHOD OF MEASUREMENT

A. Sustainable ENVISION requirements shall be considered lump sum. There shall be no separate measurement for administrative requirements, action submittals, informational submittals, or quality assurance required by this specification necessary to achieving ENVISION credits.

#### PART 5 - PAYMENT

# 5.1 METHOD OF PAYMENT

A. Payment for Sustainable ENVISION requirements shall be made at the contract unit price per lump sum for work completed and accepted based on the items listed in this Section.

Payment will be made under:

<u>Pay Item</u> 018113a

Sustainable ENVISION Requirements

<u>Pay Unit</u> Lump Sum

END OF SECTION 018113.16

# **SECTION 019113**

# GENERAL COMMISSIONING REQUIREMENTS

# PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 01 Specification Sections, apply to this Section.
- B. Basis of Design (BOD) documentation included by reference for information only.
- C. Specification Sections:
  - 1. Section 013100 Project Management and Coordination
  - 2. Section 013119 Project Meetings
  - 3. Section 013300 Submittal Procedures
  - 4. Section 014520 Contractor Quality Control Program-FAA

#### 1.02 SUMMARY

- A. Scope
  - 1. Commissioning requirements common to all Sections
  - 2. Systems and equipment functional performance testing
  - 3. Validation of proper and thorough installation of systems and equipment
  - 4. Equipment performance verification
  - 5. Documentation of tests, procedures, and observations.
  - 6. Review of DEN Training agency.
- B. Section includes general requirements that apply to implementation of commissioning without regard to specific systems, assemblies, or components.
- C. Related Sections

1.

# 1.03 DEFINITIONS

- A. Acceptance Phase: The phase of the project when the facility and its systems and equipment are inspected, tested, verified, and documented; and when most of the Functional Performance Testing and formal training occurs. This will generally occur after the Construction Phase is complete (start-up and checks have been accomplished). The Acceptance Phase typically begins with Substantial Completion and ends with Final I Completion.
- B. Basis of Design (BOD): A document that records concepts, calculations, decisions, and product selections used to meet the Contract and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.
- C. Commissioning Authority (CA or CxA): The Party retained by DEN who will oversee the

Commissioning process as well as develop and stipulate many of the Commissioning requirements. They will also manage the Commissioning process, and ensure and validate that systems and equipment are designed, installed, and tested to meet DEN's requirements.

- D. Commissioning Contact (CxC): Individuals, appointed by the installing contractor, each having the authority to act on behalf of the entity he or she represents, explicitly organized to implement the commissioning process through coordinated action.
- E. Commissioning Plan: A document that outlines the organization, schedule, allocation of resources, and documentation requirements of the commissioning process.
- F. Construction Phase: Phase of the project during which the facility is constructed and/or systems and equipment are installed and started. Contractor and subcontractors complete the installation, complete start-up documentation, submit operation and maintenance information, establish trends, and perform any other applicable requirements to get systems started. Contractor and Vendors may also conduct equipment specific training. The Construction Phase will generally end upon Substantial Completion.
- G. Contractor: As used herein, 'Contractor' is a general reference to the installing Party and can therefore refer to the General Contractor, subcontractors, or vendors as inferred by its usage.
- H. Deficiency: A condition in the installation or function of a component, piece of equipment or system that does not comply with the Contract Documents, i.e., does not perform properly or is not complying with the design intent.
- I. Factory Authorized Representative: An individual fully trained on the equipment and certified by the manufacturer to perform the respective task.
- J. Factory Testing: Testing of equipment off-site at the manufacturer's facility. The testing may be witnessed by the members of the project team.
- K. Functional Performance Testing (FPT): The detailed and thorough testing of building systems and their interactions with building components and other building systems.
- L. Issue Log: This list is maintained and updated by the Commissioning Authority that includes all Issue items that relate to Commissioning activities and site observations requiring contractor action or response.
- M. Maximum Failure Limit: The maximum percentage of a test population that is permitted to fail before the test is considered a failure and subject to correction and retesting. Where test sampling is used, the Maximum Failure Limit shall be the maximum percentage of a test sample that is permitted to fail before an entirely new sample must be selected for testing.
- N. Operation and Maintenance (O&M) Documentation: Contractor-developed documentation designed to address the needs of facilities personnel and customized for the context of the specific facility and installation. This includes manufacturer's literature (including O&M manuals, parts lists, troubleshooting guides, etc.), Contractor-developed instructions for start-up and shut-down, control sequences, and other installation-specific information.
- O. Pre-Start Up: Preliminary testing accomplished during a scheduled system outage to verify system functionality prior to placing the system/equipment into preliminary service.
- P. Start-Up: Refers to the quality control process whereby the Contractor verifies the proper installation of a device or piece of equipment, executes the manufacturer's starting procedures, completes the Start-Up Checklist, energizes the device, verifies that it is in

proper working order and ready for dynamic testing, including Start-Up Tests.

- Q. Systems, Subsystems, Equipment, and Components: Where these terms are used together or separately, they shall mean "as-built" systems, subsystems, equipment, and components.
- R. Test, Adjust, and Balance (TAB): Refers to the test, adjust, and balance process or the Testing, Adjusting, and Balancing Contractor.
- S. Trending: Monitoring and recording a history of parameters typically using the EMCS.

# 1.04 ACTION SUBMITTALS

- A. General requirements:
  - 1. Provide individual checklists and procedures for each system or component.
  - 2. Develop individual checklists and procedures for each tagged piece of equipment. General procedures developed for multiple pieces of equipment, including similar equipment, are not acceptable.
  - 3. Procedures and checklists for specified phases of commissioning (e.g. Pre-startup, startup, functional performance testing) must be submitted and approved prior to commencement of the related activity.
- B. CxA submittals:
  - 1. Commissioning plan.
  - 2. Pre-functional checklists: For each system or component.
  - 3. Startup procedures: For each system or component.
  - 4. Startup checklists: For each system or component.
  - 5. Completed startup checklists: For each system or component.
  - 6. Functional Test Procedures: For each system or component.
  - 7. Functional Test Checklists: For each system or component.
  - 8. Formal acceptance recommendation for each component or system tested, following successful completion of testing.
- C. Contractor submittals:
  - 1. Completed pre-functional checklists: For each system or component.
  - 2. Completed startup checklists: For each system or component.
  - 3. Completed functional test checklists: For each system or component.

# 1.05 INFORMATIONAL SUBMITTALS

- A. CxA submittals:
  - 1. Qualifications: For CxA and testing technicians.
  - 2. Test equipment calibration certificates.
  - 3. Preliminary Commissioning Report, including the following:
    - a. Compiled test results.
    - b. Updated Issues Log.
    - c. Updated Checklist log.

- 4. Final Commissioning Report, including the following:
  - a. Compiled test results.
  - b. Seasonal test results.
  - c. Warranty walkthrough results.
  - d. Completed issues log.
  - e. Completed checklist log.

#### 1.06 COMMISSIONING TEAM

- A. Members Appointed by Contractor(s):
  - 1. Contractor shall appoint a CxC.
  - 2. The commissioning team shall consist of, but not be limited to, representatives of each Contractor, including Project superintendent and subcontractors, installers, suppliers, and specialists deemed appropriate by the CxA.
- B. Members Appointed by DEN Project Manager:
  - 1. CxA: The designated person, company, or entity that plans, schedules, and coordinates the commissioning team to implement the commissioning process. DEN will engage the CxA under a separate contract.
  - 2. Representatives of DEN Sustainability, DEN Project Manager Representative, and DEN Maintenance personnel.
  - 3. Architect and engineering design professionals.

### 1.07 DEN'S RESPONSIBILITIES

- A. Assign DEN Sustainability and Operations Maintenance personnel and schedule them to participate in commissioning team activities.
- B. Coordinate activities specified in paragraph below with DOR and Architect-Consultant agreements.
- C. Provide the BoD documentation, prepared by DOR, and approved by DEN, to the CxA and [each ]Contractor for use in developing the commissioning plan, systems manual, and operation and maintenance training plan.

#### 1.08 EACH CONTRACTOR'S RESPONSIBILITIES

- A. Each Contractor shall assign representatives with expertise and authority to act on its behalf and shall schedule them to participate in and perform commissioning process activities including, but not limited to, the following:
  - 1. Include Commissioning requirements in price and plan for work.
  - 2. Evaluate performance deficiencies identified in test reports and, in collaboration with entity responsible for system and equipment installation, recommend corrective action.
  - 3. Cooperate with the CxA for resolution of issues recorded in the Issues Log.
  - 4. Attend commissioning team meetings held on an "as-needed" basis and progressing to weekly meetings as construction project nears completion.
  - 5. Integrate and coordinate commissioning process activities with construction schedule.
  - 6. Review and accept construction pre-functional checklists provided by the CxA prior to commencing functional testing.

| TECHNICAL SPECIFICATIONS                            |
|---|
| DIVISION 01 – GENERAL REQUIREMENTS                  |
| SECTION 019113 - GENERAL COMMISSIONING REQUIREMENTS |

- 7. Complete electronic construction checklists as Work is completed and provide to the DEN Project Manager after each checklist has been completed.
- 8. Review and accept commissioning process functional test procedures provided by the Commissioning Authority.
- 9. Designate a CxC from each major subcontractor with activities related to commissioning. These CxCs are to be the primary contacts for Commissioning activities.
- 10. Contractor shall incorporate the Commissioning process into the construction schedule, outlining generic Commissioning tasks with precedents or prerequisites to each task. These tasks will apply to many systems and the Contractor shall incorporate as such. Examples of enumerated tasks include, but are not limited to:
  - a. Contractor preparation of the Training Plan
  - b. Testing Agency activities
  - c. Contractor documentation of pipe pressure testing, flushing, and cleaning of applicable systems
  - d. Documentation of the Start-Up Procedures for equipment and systems
  - e. TAB of applicable system
  - f. Preparation of the O&M Manual content
  - g. FPT and Acceptance
  - h. Observation Period and System Optimization
  - i. Occupant or other Regulatory Agency testing or approval process
- 11. Assist the CxA in preparation for the specific FPT procedures. Contractors, subcontractors, and vendors shall review the FPTs to ensure feasibility, safety, and equipment protection and provide necessary written alarm limits to be used during the tests. Damage caused to equipment performed in accordance with the approved procedures that is the result of malfunctioning equipment or contract deficiencies, shall be the responsibility of the Contractor.
- 12. Record start-up and testing procedures.
- 13. Demonstrate the operation of all systems as specified.
  - a. Operate systems, with assistance of DEN Maintenance, under direction of the CxA during FPT's and other acceptance testing.
- B. Acceptance Phase: The following delineates the commissioning-related responsibilities of the Contractor (and their subcontractors) during the Acceptance Phase.
  - 1. Work in conjunction with CxA in FPT and shall include, but not limited to the following:
    - a. Operate and Manipulate systems and equipment to facilitate testing (as dictated in this section, relevant technical sections and the Commissioning Plan).
    - b. Operate and Manipulate EMCS and other control systems to facilitate FPT (as dictated in this section, relevant technical sections and the Commissioning Plan).
  - 2. Correct any work not in accordance with Contract Documents.
  - 3. Maintain record documentation and update and resubmit it after Functional Completion.
  - 4. Compensate DEN for additional CxA fees and expenses incurred to retest equipment and systems following testing failures.
  - 5. Monitor systems, equipment, and areas throughout the Transition Period. Log and diagnose all alarms during this period. Maintain trends and logs of all critical parameters. Forward the logs and trends on a weekly basis throughout all Transition Periods.

- C. Warranty Period: The following delineates the commissioning-related responsibilities of the Contractor (and their subcontractors) during the Warranty Period.
  - 1. Provide warranty service
  - 2. Conduct EMCS Sequence Training
  - 3. Respond to and document Warranty issues
  - 4. Correct any deficiencies identified throughout the Warranty Period
  - 5. Update record documentation to reflect any changes made throughout the Warranty Period and resubmit final Record Drawings and data records at the close of the Warranty period

### 1.09 CXA'S RESPONSIBILITIES

- A. Organize and lead the commissioning team through the entire project.
- B. Provide and update construction phase commissioning plans.
- C. Convene commissioning team meetings to discuss commissioning activities and current issues and resolutions.
- D. Provide Project-specific construction checklists and commissioning process test procedures.
- E. Review all pertinent equipment submittals, shop drawings, and O&M documentation.
- F. Verify the execution of commissioning process activities. Verification will include, but is not limited to, equipment submittals, construction checklists, training, operating and maintenance data, tests, and test reports to verify compliance with the DPR. When a requirement is not met, the CxA will report the failure in the Issues Log.
- G. Prepare and maintain the Issues Log.
- H. Prepare and maintain completed construction checklist log.
- I. Organize and lead the functional, seasonal, any LEED required tests, and 10-month Warranty review in the presence of the contractor, DEN Maintenance, and DEN PM assigned personnel.
- J. Witness systems, assemblies, equipment, and component startup.
- K. Compile test data, inspection reports, and certificates; include them in the systems manual and commissioning process report.

#### 1.10 ISSUES LOG

- A. CxA shall maintain an Issues Log (required information, identified deficiencies, work required, etc.) that relates to Commissioning. Each item shall be tracked with the initiator, the parties responsible, due date, the date of closure, and a description of the resolution. Each item shall be categorized for sorting and tracking and for documentation on applicable forms.
- B. CxA will provide this list to the DEN Project Manager during regular project meetings as appropriate to keep all parties informed.
- C. All parties indicated as responsible for an action item shall respond to the DEN Project

Manager. Responses are due within 10 days of action items being identified to the team.

### 1.11 PRE-START UP

- A. PREREQUISITES
  - 1. All equipment, components, and devices applicable to the Pre-Start Up must be installed, and the Pre-Start Up must be documented and approved. This includes installation, identification labeling, insulation, and all other requirements for placing systems into dynamic operation.
- B. COMMON ELEMENTS
  - 1. Required submittal documentation shall be present and located convenient to testing area.
  - 2. Contractor shall submit the completed Pre-Start Up Procedures at least 10 days prior to the start of Functional testing. CxA shall review the Pre-Start Up Procedure documentation at the beginning of Start Up. Contractor shall demonstrate to DEN Project Manager, DEN Maintenance and DEN Sustainability that access is sufficient to perform required maintenance.
  - 3. System and equipment configurations shall be compared against the contract documents.

### 1.12 INSTRUMENTATION

- A. All test instruments described in this section shall be acceptable for any portion of the commissioning process herein described.
- B. All instruments shall conform to the standards specified in the most recent edition of "NEBB Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems" regarding accuracy and calibration status. Current calibration certificates must be available to the CxA if requested.
- C. Test instrument accuracy and resolution must match or exceed that of the system component being verified or calibrated.
- D. Test instruments must be used within guidelines as recommended by instrument manufacturer. All measuring methods must be appropriate to the instrument application and measurements must be repeatable under equivalent conditions.
- E. Standard Testing Instrumentation: Standard instrumentation normally used for performance assessment and diagnosis shall be provided by testing entity. These include, but are not limited to:
  - 1. Electronic Manometer (for Air and Flow Hood)
  - 2. Electronic Manometer (for Water)
  - 3. Temperature Instruments
  - 4. Pressure instruments
  - 5. Humidity Instruments
  - 6. CO2 Instrument
  - 7. Sound Meter
  - 8. Electronic Multimeter
  - 9. Tachometer

- 10. Ultrasonic Flow Meter
- 11. Others as required

# 1.13 START-UP

- A. Prerequisites
  - 1. All equipment, components, and devices applicable to the FPT must be started, and the Start-Up must be documented and approved. This includes completion of Start-Up Procedures, pressure testing (of equipment, duct and piping), flushing/cleaning, identification labeling, insulation, and all other requirements for placing systems into dynamic operation.
  - 2. Unless specifically agreed to by DEN and CxA, all support systems shall be complete prior to FPT.
  - 3. The CxA shall determine the optimal sequence of testing.
- B. Common Elements
  - 1. Required submittal documentation shall be present and located convenient to testing area. Validate that all required documentation has been submitted and [complete] per the contract requirements.
  - 2. Contractor shall provide the completed Start-Up Procedures at the time of testing. CxA shall review the Start-Up Procedure documentation and spot-check at the beginning of FPT.
- C. Procedure
  - 1. Purpose:
    - a. Verify adherence to, and documentation of, quality control processes involved with preparing systems and equipment for operation.
    - b. These procedures shall be performed on all installed systems and equipment and no sampling strategy is used for the start-up process.
    - c. The Commissioning process requires all Parties to collaborate to establish the optimal standard of care for starting systems and equipment.
    - d. After the procedures are established, the Contractor performs them and documents them with the Start-up Procedures that are developed by the Contractor.
  - 2. Start-Up Procedures: The content of these Start-Up Procedures shall provide the minimally acceptable content in accordance with the OEM field quality control requirements. Generic refers to the fact that the protocols may be created before the shop drawings are finalized. These procedures and protocols will normally be common across different manufacturers.
  - 3. Content of Start-Up Procedures: Start-Up Procedures shall generally include the following for each item of equipment or system (as applicable):
    - a. Project-specific designation, location, and service.
    - b. Indication of the Party performing and documenting the Start-Up Procedure.
    - c. Clear explanation of the inspection, test, measurement, and outcome with a Pass/Fail indication and a record of measure parameters.
    - d. A Start-up Checklist item indicating that proper maintenance clearances have been maintained.
  - 4. Recording and Documentation of Factory Start-Up: Manufacturer's start-up protocols shall be executed and forms shall be completed by a qualified/authorized technician.
  - 5. Recording and Documentation of non-Factory Start-Up: The start-up tests and

checklists shall be completed by a qualified technician.

- 6. Commissioning Authority Review: CxA will review and spot-check procedures during FPT.
- 7. Documentation Completion: The individual executing the start-up must complete the start-up and pre-functional documentation for any given equipment and acknowledge acceptability with the indication of who did the associated task.
- 8. Sampling and Final Submission: All (100% of) systems are started and documented per the approved procedures and NO sampling strategy is used. Completed Start-up and pre-functional checklists for all pieces of equipment associated with independent systems shall be submitted to CxA prior to any associated FPT. Any outstanding item shall be clearly indicated and an associated Action Item must be entered to track resolution.
- 9. DEN Access: Contractor shall allow access by DEN representatives to inspect the equipment and ensure its proper operation.

# 1.14 TEST, ADJUST, AND BALANCE

- A. CxA shall review TAB reports.
- B. The CxA shall select up to 10% of the readings from the Balancing Reports and verify performance readings. Readings selected by the CxA may include:
  - 1. Supply air diffuser readings (both minimum and maximum readings for variable air volume boxes).
  - 2. Main and branch supply duct traverse readings.
  - 3. Outside/return air flow readings.
  - 4. Exhaust airflow readings.
  - 5. Water flow readings.
  - 6. Ampere readings.
  - 7. Water pressure drop readings through coils, heat exchangers, and other hydronic elements.
- C. For all readings, a deviation of more than 10% between the verification reading and reported data shall be considered as failing the FPT. The maximum failure rate for the sample is 10%.
- D. If greater than 10% of sample readings have failed, the TAB contractor shall justify all noted failures or rebalance and re-document the system.

# 1.15 FUNCTIONAL PERFORMANCE TESTING

- A. Objectives and Scope
  - 1. Demonstrate that each system is operating according to the documented design intent and Contract Documents.
  - 2. Bring all commissioned systems from a state of substantial completion to full dynamic operation.
  - 3. Identify and correct performance deficiencies.
  - 4. Operate each system through all modes of operation (seasonal, occupied, unoccupied, warm-up, cool-down, normal and emergency power, fire alarm, part- and full-load) where there is a specified system response.

- 5. Verify each sequence in the sequences of operation as required.
- 6. Verify responses to abnormal operational modes and conditions, such as power failure, freeze conditions, no flow, equipment failure, etc.
- B. Development of Test Procedures
  - 1. CxA shall develop specific test procedures to verify and document proper operation of each piece of equipment and system.
  - 2. CxA shall develop fill-in forms for use during FPT, based on the test procedures.
  - 3. Not less than 14 days prior to execution of FPT, CxA shall submit completed test procedures to the DEN Project Manager to review the tests for feasibility, safety, equipment and warranty protection, and scope.
  - 4. EMCS trends shall have been established as required in the documents. These shall generally be reviewed prior to or during FPT.
  - 5. Capacities and adjusted/balanced conditions as applicable shall be subject to review.
  - 6. Sequencing Verification: For applicable systems and equipment, all modes of operation shall be verified for proper sequencing.
  - 7. System and equipment configurations shall be compared against the contract documents.
  - 8. All adjusted, balanced, controlled systems shall be assessed to determine the optimal setting for the system as applicable. The optimal settings should be determined to establish reliable, efficient, safe, and stable operation.
- C. Scheduling:
  - 1. Contractor shall notify the CxA and the DEN Project Manager that systems are ready for testing, to schedule FPT.
  - 2. To the extent practical, tests shall be scheduled to allow efficient and contiguous testing of inter-related systems and equipment.
- D. Phasing:
  - 1. Non-interdependent segments of the project testing may be phased.
  - 2. Phasing of FPT for this project shall be coordinated between the CxA, Contractor, and the DEN Project Manager as the project progresses.
- E. Participation:
  - 1. CxA shall witness and document FPTs performed by the contractor after Start-Up Procedure documentation of systems and equipment has been reviewed and accepted.
  - 2. Contractor shall perform the FPTs as described, with manipulation of the systems or equipment, provision of supporting equipment or materials (lifts, ladders, specialty test equipment, safety equipment), and on-the-spot remediation of minor identified deficiencies whenever possible.
  - 3. Required participating Parties shall be indicated in the test plan for each individual FPT.
  - 4. Required participating parties shall be available on-site throughout the testing of any given system for which they are required participants.
  - 5. CxA shall coordinate effectively with the individual Contractors throughout FPT and minimize their required involvement.

#### F. Completeness:

- 1. All systems must be completed and ready for FPT at the time of the test.
- 2. All start up, factory authorized field testing, independent testing agency tests, and TAB procedures must be complete and the control systems must be tested and operational for the respective system or component.
- G. Test Documentation:
  - 1. CxA shall witness and document the tests.
  - 2. CxA shall record all test results on the forms developed for the testing.
  - 3. CxA shall 'Pass' or 'Fail' the testing and record the date and time of the test.
  - 4. Deficiencies shall be clearly indicated when the test is failed.
  - 5. When all related testing is completed successfully, CxA shall recommend acceptance of the system or component.
  - 6. In the case of specialized testing, CxA shall witness and review the testing reports prepared by the Contractor.
- H. Acceptance Criteria
  - 1. The Acceptance Criteria shall be as follows unless specifically indicated within applicable individual specification sections or test procedures.
    - Accuracy/repeatability on sensing devices will be as specified for the device. CxA and TAB will use calibrated gauges for independent validation of sensing devices.
    - b. HVAC sequence-related criteria will be as specified in the documents.
- I. Deficiencies
  - 1. CxA shall record the results of each functional test. All deficiencies or nonconformance issues shall be brought to Contractor's attention immediately, noted in the Issues Log, and reported to the DEN Project Manager within 72 hours.
    - a. Corrections of identified minor deficiencies may be made during the tests where feasible. In such cases, the deficiency will be noted on the FPT documents.
    - b. Deficiencies with potential schedule or cost impacts shall be reported to the DEN Project Manager within 24 hours of discovery.
  - 2. Contractor shall correct all identified deficiencies as directed by the DEN Project Manager.
    - a. CxA shall maintain Contractor's response to each deficiency in the Issues Log.
    - b. Contractor shall correct each deficiency, and notify CxA upon completion by completing an action item response.
    - c. Contractor shall schedule repeat testing and ensure CxA is available to observe.
  - 3. Disputes:
    - a. Contractor shall notify the DEN Project Manager and CxA immediately if the responsibility or nature of any identified deficiency is in dispute.
    - b. The CxA shall document as a disputed deficiency in the Issues Log.
    - c. The Contractor shall negotiate a resolution to the dispute with the DEN Project Manager.
    - d. Upon resolution, CxA shall update the Issues Log to reflect the status of the deficiency
- J. Sampling Percentage:

- 1. Sampling percentage shall be as indicated in the test plan.
- 2. Where no sampling percentage is indicated, the implied sampling percentage is 100% and all units shall be tested.
- K. Maximum Failure Limit:
  - 1. Maximum Failure Limit shall be as indicated in the test plan.
  - 2. When the maximum number of failures is reached, testing on that sample will be terminated and re-testing will be scheduled.
  - 3. If no Maximum Failure Limit is indicated, the implied failure limit is 0% and all tested samples must pass.
  - 4. Where sample tests involve multiple systems (i.e., checking strainers on different hydronic systems), the Maximum Failure Limit will apply per system.
  - 5. The responsible Contractors shall reimburse DEN for the CxA's cost of that sample test, and redo the start-up and TAB for the applicable devices/systems.
  - 6. All work necessitated by sample failures shall be at no cost to DEN.
- L. Manufacturer's Defects:
  - 1. If 10% of identical pieces of equipment fail to perform to the Contract Documents (mechanically or substantively) due to a manufacturing defect, all identical units may be considered unacceptable by the DEN Project Manager.
  - 2. For the purposes of defining 'identical equipment' for this Section, size or capacity alone does not constitute a difference.
  - 3. In case of failure due to manufacturer's defects, the Contractor shall provide DEN with the following:
    - a. Manufacturer's response in writing as to the cause of the failure and proposed resolution.
    - b. Manufacturer shall implement their proposed resolution on a representative sample of the product.
    - c. The DEN Project Manager will determine whether a replacement of all identical units or a repair is acceptable.
    - d. Upon acceptance, the Contractor shall replace or repair all identical items at their expense and shall extend the warranty accordingly (if the original equipment warranty had begun).
    - e. Manufacturer shall pay the costs of all retesting necessitated by the failure.

# 1.16 CLOSEOUT

- A. Commissioning Report
  - 1. A final summary report by the CxA shall be provided to the DEN Project Manager, focusing on evaluating commissioning process issues and identifying areas where the process could be improved.
  - 2. Include all acquired documentation, logs, minutes, reports, deficiency lists, communications, findings, unresolved issues, etc., compiled in appendices, and provided with the summary report.
  - 3. Pre-Start Up verification, Start Up checklists, TAB, functional tests, and monitoring reports shall not be included the final report, but shall be submitted as part of the Commissioning Record in the O&M manuals.
- B. Logs

- CxA shall submit an updated Issues Log and all Issues Logs upon substantial completion of the project.
- C. Acceptance
  - 1. CxA shall recommend acceptance of each test in writing to the DEN Project Manager.
  - 2. The CxA shall note each satisfactorily demonstrated function on the test documentation.
  - 3. Tests shall be considered accepted only upon formal acceptance by the DEN Project Manager.
- D. Training
  - 1. The Contractor shall be responsible for training coordination and scheduling and ultimately for ensuring that training is completed.
  - 2. The CxA shall witness the content and adequacy of the training of DEN personnel for commissioned equipment. Any issues shall be noted in the Issues Log and reported immediately to the DEN Project Manager.
- E. Operation and Maintenance Manual and Record Drawing Review
  - 1. Prior to substantial completion, the CxA shall review the O&M manuals, documentation, and redlined as-built drawings for systems that were commissioned to verify compliance with the Specifications.
  - 2. The CxA shall review completed record drawings and document any discrepancies in the Issues Log.

# 1.17 WARRANTY PERIOD

- A. Warranty Walkthrough
  - 1. General Requirements
    - a. Contractor and CxA, under direction from the DEN Project Manager and DEN Asset Management, shall participate in an on-site walkthrough of all commissioned systems.
    - b. The warranty walkthrough shall occur not less than nine (9) months following substantial completion, and not more than eleven (11) months following substantial completion.
    - C.
  - 2. CxA's Responsibilities
    - a. The CxA shall document any deficiencies found during the warranty walkthrough in the Issues Log and notify the DEN Project Manager.
- B. Seasonal Testing
  - 1. During the warranty period, seasonal testing (tests delayed until weather conditions are closer to the system's design) shall be completed as part of this contract.
  - 2. The CxA shall coordinate this activity with the DEN Project Manager and the Contractor.
  - 3. Tests will be executed, documented and deficiencies corrected by the appropriate parties, with DEN maintenance staff and the CxA witnessing.
  - 4. Any final adjustments to the O&M manuals and Record Drawings due to the testing will be made by the responsible parties.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

#### **PART 4 - MEASUREMENT**

# 4.01 METHOD OF MEASUREMENT

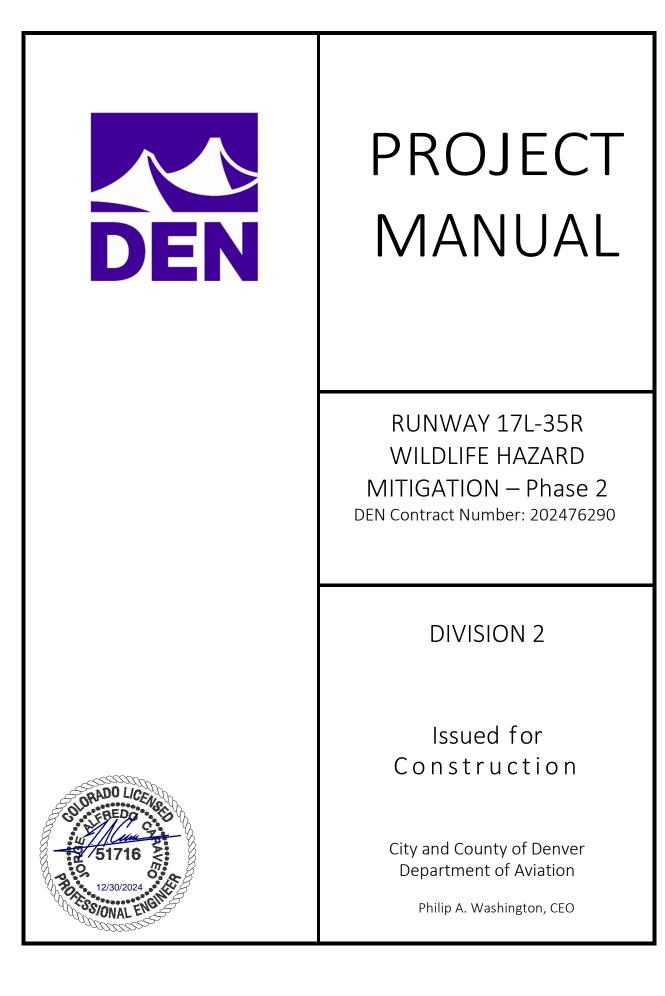
A. No separate measurement shall be made for work under this Section.

#### **PART 5 - PAYMENT**

#### 5.01 METHOD OF PAYMENT

A. No separate payment will be made for work under this section. The cost of the work described in this section shall be included in the applicable unit price item, work order or lump sum bid item.

#### END OF SECTION 019113



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TECHNICAL SPECIFICATIONS DIVISION 2 – TECHNICAL SPECIFICATION TABLE OF CONTENTS

# **SPECIFICATIONS TABLE OF CONTENTS**

# **DIVISION 02 – TECHNICAL SPECIFICATIONS**

- GP-10 DEFINITION OF TERMS
- GP-20 PROPOSAL REQUIREMENTS AND CONDITIONS
- GP-30 AWARD AND EXECUTION OF CONTRACT
- GP-40 SCOPE OF WORK
- GP-50 CONTROL OF WORK
- GP-60 CONTROL OF MATERIALS
- GP-70 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC
- GP-80 EXECUTION AND PROGRESS
- GP-90 MEASUREMENT AND PAYMENT
- C-105 MOBILIZATION
- P-101 PREPERATION/REMOVAL OF EXISITNG PAVEMENTS
- P-152 EXCAVATION, SUBGRADE, AND EMBANKMENT
- P-161 GEOTEXTILE
- P-304C CDOT AGGREGATE BASE COURSE
- P-605 JOINT SEALANTS FOR CONCRETE PAVEMENTS
- P-610 CONCRETE FOR MISCELLANEOUS STRUCTURES
- D-701 PIPE FOR STORM DRAINS AND CULVERTS
- D-705 PIPE UNDERDRAINS
- D-710 ROCK RIPRAP
- D-752 CONCRETE CULVERTS, HEADWALLS, AND MISC DRAINAGE STRUCTURES
- F-162 CHAIN LINK FENCE
- F-163 WILDLIFE DETERRENT FENCE SKIRT
- T-901 SEEDING
- T-905 TOPSOIL
- T-908 MULCHING

TECHNICAL SPECIFICATIONS DIVISION 2 – TECHNICAL SPECIFICATION TABLE OF CONTENTS

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# **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<br>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<br>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<br>to be used for the landing and takeoff of aircraft; an appurtenant<br>area used or intended to be used for airport buildings or other<br>airport facilities or rights of way; airport buildings and facilities<br>located in any of these areas, and a heliport.   |
| 10-05               | Airport Improvement<br>Program (AIP) | A grant-in-aid program, administered by the Federal Aviation Administration (FAA).   |
| 10-06               | Air Operations Area<br>(AOA)         | The term air operations area (AOA) shall mean any area of the<br>airport used or intended to be used for the landing, takeoff, or<br>surface maneuvering of aircraft. An air operation area shall<br>include such paved or unpaved areas that are used or intended to<br>be used for the unobstructed movement of aircraft in addition to<br>its associated runway, taxiway, or apron. |
| 10-07               | Apron                                | Area where aircraft are parked, unloaded or loaded, fueled and/or serviced.  |
| 10-08               | ASTM International<br>(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<br>or through a duly authorized representative, who submits a<br>proposal for the work contemplated.  |

DENVER INTERNATIONAL AIRPORT RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 CONTRACT NO: 202476290

| Paragraph<br>Number | Term   | Definition  |
|---------------------|--|---|
| 10-11               | Building Area                                  | An area on the airport to be used, considered, or intended to be<br>used for airport buildings or other airport facilities or rights-of-<br>way together with all airport buildings and facilities located<br>thereon.  |
| 10-12               | Calendar Day                                   | Every day shown on the calendar.  |
| 10-13               | Certificate of Analysis<br>(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<br>(COC)             | The manufacturer's certification stating that materials or<br>assemblies furnished fully comply with the requirements of the<br>contract. The certificate shall be signed by the manufacturer's<br>authorized representative.   |
| 10-15               | Change Order                                   | A written order to the Contractor covering changes in the plans,<br>specifications, or proposal quantities and establishing the basis of<br>payment and contract time adjustment, if any, for work within the<br>scope of the contract and necessary to complete the project.   |
| 10-16               | Contract                                       | A written agreement between the Owner and the Contractor that<br>establishes the obligations of the parties including but not limited<br>to performance of work, furnishing of labor, equipment and<br>materials and the basis of payment.  |
|                     |  | The awarded contract includes but may not be limited to:<br>Advertisement, Contract form, Proposal, Performance bond,<br>payment bond, General provisions, certifications and<br>representations, Technical Specifications, Plans, Supplemental<br>Provisions, standards incorporated by reference and issued<br>addenda. |
| 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<br>proposal, allowed for completion of the contract, including<br>authorized time extensions. If a calendar date of completion is<br>stated in the proposal, in lieu of a number of calendar or working<br>days, the contract shall be completed by that date. |
| 10-19               | Contractor                                     | The individual, partnership, firm, or corporation primarily liable<br>for the acceptable performance of the work contracted and for the<br>payment of all legal debts pertaining to the work who acts<br>directly or through lawful agents or employees to complete the<br>contract work.                                 |
| 10-20               | Contractors Quality<br>Control (QC) Facilities | The Contractor's QC facilities in accordance with the Contractor Quality Control Program (CQCP).  |

DENVER INTERNATIONAL AIRPORT RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 CONTRACT NO: 202476290

| Paragraph<br>Number | Term   | Definition   |
|---------------------|--|--|
| 10-21               | Contractor Quality Control<br>Program (CQCP)   | Details the methods and procedures that will be taken to assure<br>that all materials and completed construction required by the<br>contract conform to contract plans, technical specifications and<br>other requirements, whether manufactured by the Contractor, or<br>procured from subcontractors or vendors. |
| 10-22               | Control Strip                                  | A demonstration by the Contractor that the materials, equipment,<br>and construction processes results in a product meeting the<br>requirements of the specification.  |
| 10-23               | Construction Safety and<br>Phasing Plan (CSPP) | The overall plan for safety and phasing of a construction project<br>developed by the airport operator, or developed by the airport<br>operator's consultant and approved by the airport operator. It is<br>included in the invitation for bids and becomes part of the project<br>specifications.                 |
| 10-24               | Drainage System                                | The system of pipes, ditches, and structures by which surface or<br>subsurface waters are collected and conducted from the airport<br>area.  |
| 10-25               | Engineer                                       | The individual, partnership, firm, or corporation duly authorized<br>by the Owner to be responsible for engineering, inspection,<br>and/or observation of the contract work and acting directly or<br>through the DEN PM.  |
| 10-26               | Equipment                                      | All machinery, together with the necessary supplies for upkeep<br>and maintenance; and all tools and apparatus necessary for the<br>proper construction and acceptable completion of the work.   |
| 10-27               | Extra Work                                     | An item of work not provided for in the awarded contract as<br>previously modified by change order or supplemental agreement,<br>but which is found by the DEN PM to be necessary to complete<br>the work within the intended scope of the contract as previously<br>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<br>descriptions, and supplements, amendments, and indices<br>prepared and issued by the General Services Administration.   |

DENVER INTERNATIONAL AIRPORT RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 CONTRACT NO: 202476290

| Paragraph<br>Number | Term                               | Definition   |
|---------------------|------------------------------------|--|
| 10-30               | Force Account                      | <b>a.</b> Contract Force Account - A method of payment that addresses extra work performed by the Contractor on a time and material basis.   |
|                     |                                    | <b>b.</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<br>"directed," "required," "permitted," "ordered," "designated,"<br>"prescribed," or words of like import are used, it shall be<br>understood that the direction, requirement, permission, order,<br>designation, or prescription of DEN PM is intended; and<br>similarly, the words "approved," "acceptable," "satisfactory," or<br>words of like import, shall mean approved by, or acceptable to,<br>or satisfactory to the DEN PM, subject in each case to the final<br>determination of the Owner. |
|                     |                                    | Any reference to a specific requirement of a numbered paragraph<br>of the contract specifications or a cited standard shall be<br>interpreted to include all general requirements of the entire<br>section, specification item, or cited standard that may be<br>pertinent to such specific reference.   |
| 10-32               | Lighting                           | A system of fixtures providing or controlling the light sources<br>used on or near the airport or within the airport buildings. The<br>field lighting includes all luminous signals, markers, floodlights,<br>and illuminating devices used on or near the airport or to aid in<br>the operation of aircraft landing at, taking off from, or taxiing on<br>the airport surface.  |
| 10-33               | Major and Minor Contract<br>Items  | A major contract item shall be any item that is listed in the<br>proposal, the total cost of which is equal to or greater than 20%<br>of the total amount of the award contract. All other items shall be<br>considered minor contract items.  |
| 10-34               | Materials                          | Any substance specified for use in the construction of the contract work.  |
| 10-35               | Modification of Standards<br>(MOS) | Any deviation from standard specifications applicable to material<br>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<br>work on a previously agreed to date. If applicable, the Notice to<br>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 the City and County of Denver.  |

DENVER INTERNATIONAL AIRPORT RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 CONTRACT NO: 202476290

| Paragraph<br>Number | Term                                 | Definition  |
|---------------------|--------------------------------------|---|
| 10-38               | Passenger Facility Charge<br>(PFC)   | Per 14 Code of Federal Regulations (CFR) Part 158 and 49<br>United States Code (USC) § 40117, a PFC is a charge imposed<br>by a public agency on passengers enplaned at a commercial<br>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<br>their own surety as a guaranty that the Contractor will pay in full<br>all bills and accounts for materials and labor used in the<br>construction of the work.   |
| 10-41               | Performance bond                     | The approved form of security furnished by the Contractor and<br>their own surety as a guaranty that the Contractor will complete<br>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.' |
| 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<br>proposal form) to perform the contemplated work and furnish the<br>necessary materials in accordance with the provisions of the<br>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<br>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)<br>Inspector  | An authorized representative of the DEN PM assigned to make<br>all necessary inspections, observations, tests, and/or observation<br>of tests of the work performed or being performed, or of the<br>materials furnished or being furnished by the Contractor.                                      |
| 10-49               | Quality Assurance (QA)<br>Laboratory | The official quality assurance testing laboratories of the Owner<br>or such other laboratories as may be designated by the DEN PM.  |

DENVER INTERNATIONAL AIRPORT RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 CONTRACT NO: 202476290

| Paragraph<br>Number | Term                                      | Definition   |
|---------------------|---|--|
|                     |   | May also be referred to as Engineer's, Owner's, or QA<br>Laboratory.   |
| 10-50               | Resident Project<br>Representative (RPR)  | The individual, partnership, firm, or corporation duly authorized<br>by the Owner to be responsible for all necessary inspections,<br>observations, tests, and/or observations of tests of the contract<br>work performed or being performed, or of the materials furnished<br>or being furnished by the Contractor, and acting directly or<br>through an authorized representative. For the purposes of this<br>project, the terms RPR and DEN Project Manager shall be<br>interchangeable. |
| 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<br>for reducing the risk of damage to aircraft. See the construction<br>safety and phasing plan (CSPP) for limits of the RSA.  |
| 10-53               | Safety Plan Compliance<br>Document (SPCD) | Details how the Contractor will comply with the CSPP.  |
| 10-54               | Specifications                            | A part of the contract containing the written directions and<br>requirements for completing the contract work. Standards for<br>specifying materials or testing which are cited in the contract<br>specifications by reference shall have the same force and effect<br>as if included in the contract physically.  |
| 10-55               | Sponsor                                   | A Sponsor is defined in 49 USC § 47102(24) as a public agency<br>that submits to the FAA for an AIP grant; or a private Owner of a<br>public-use airport that submits to the FAA an application for an<br>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<br>work during progress, authorized to receive and fulfill<br>instructions from the DEM PM, and who shall supervise and<br>direct the construction.  |
| 10-59               | Supplemental Agreement                    | A written agreement between the Contractor and the Owner that<br>establishes the basis of payment and contract time adjustment, if<br>any, for the work affected by the supplemental agreement. A<br>supplemental agreement is required if: (1) in scope work would  |

DENVER INTERNATIONAL AIRPORT RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 CONTRACT NO: 202476290

| Paragraph<br>Number | Term                                  | Definition   |
|---------------------|---------------------------------------|--|
|                     |                                       | increase or decrease the total amount of the awarded contract by<br>more than 25%: (2) in scope work would increase or decrease the<br>total of any major contract item by more than 25%; (3) work that<br>is not within the scope of the originally awarded contract; or (4)<br>adding or deleting of a major contract item.  |
| 10-60               | Surety                                | The corporation, partnership, or individual, other than the<br>Contractor, executing payment or performance bonds that are<br>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<br>designated by competent airport authority for movement of<br>aircraft to and from the airport's runways, aircraft parking areas,<br>and terminal areas.  |
| 10-63               | Taxiway/Taxilane Safety<br>Area (TSA) | A defined surface alongside the taxiway prepared or suitable for<br>reducing the risk of damage to an aircraft. See the construction<br>safety and phasing plan (CSPP) for limits of the TSA.  |
| 10-64               | Work                                  | The furnishing of all labor, materials, tools, equipment, and<br>incidentals necessary or convenient to the Contractor's<br>performance of all duties and obligations imposed by the<br>contract, plans, and specifications.   |
| 10-65               | Working day                           | A working day shall be any day other than a legal holiday,<br>Saturday, or Sunday on which the normal working forces of the<br>Contractor may proceed with regular work for at least six (6)<br>hours toward completion of the contract. When work is<br>suspended for causes beyond the Contractor's control, it will not<br>be counted as a working day. Saturdays, Sundays and holidays<br>on which the Contractor's forces engage in regular work will be<br>considered as working days. |
| 10-66               | Owner Defined terms                   | <b>DEN Project Manager (DEN PM).</b> The Individual duly<br>authorized by the owner to be responsible for engineering<br>inspection of the contract work and acting directly or through an<br>authorized representative.   |

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TECHNICAL SPECIFICATIONS GENERAL PROVISIONS GP-20 PROPOSAL REQUIREMENTS AND CONDITIONS

## Section 20 Proposal Requirements and Conditions

**20-01 Advertisement (Notice to Bidders).** This project has been advertised on the DEN Contract Procurement Website, Bid Net. (www.bidnetdirect.com)

**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 5 percent of the total project cost.

A prebid conference is required 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. See project advertisement for date of prebid.

**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.

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| PROPOSAL REQUIREMENTS AND CONDITIONS |  |
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- 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.

**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.

| TECHNICAL SPECIFICATIONS             | DENVER INTERNATIONAL AIRPORT                   |
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| GP-20                                | CONTRACT NO: 202476290                         |
| 01-20                                | CONTRACT NO: 202470230                         |
| PROPOSAL REQUIREMENTS AND CONDITIONS |  |
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**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. Each proposal shall be prepared in accordance with the Preparation of Bid as described in the Invitation for Bid. Proposers shall submit their bid and all required forms via BidNet website.

**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 or by email 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.

TECHNICAL SPECIFICATIONS GENERAL PROVISIONS GP-20 PROPOSAL REQUIREMENTS AND CONDITIONS

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.

TECHNICAL SPECIFICATIONS GENERAL PROVISIONS GP-30 AWARD AND EXECUTION OF CONTRACT

## 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 Base Bid inclusive of Additive Alternate No. 1, conforming with all the material terms and conditions of the bid documents, is the lowest price. If the lowest total Base Bid inclusive of Additive Alternate No. 1 is in excess of the Owner's maximum intended Construction budget range, then the Owner may elect to make award to the responsible bidder whose base bid not inclusive of Additive Alternate No. 1, conforming with all the materials terms and conditions of the bid documents, is the lowest price.

For the purposes of this project and bid process, the base bid shall include all work defined for Schedules I, II, III, IV, V, and VI and Additive Alternate No. 1 shall include all work defined for Schedules VII and VIII.

**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*.

TECHNICAL SPECIFICATIONS GENERAL PROVISIONS GP-30 AWARD AND EXECUTION OF CONTRACT

**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.

TECHNICAL SPECIFICATIONS GENERAL PROVISIONS GP-40 SCOPE OF WORK DENVER INTERNATIONAL AIRPORT RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 CONTRACT NO: 202476290

#### 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 DEN PM 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 DEN PM 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 DEN PM's opinion, is necessary for completion of the extra work.

When determined by the DEN PM to be in the Owner's best interest, the DEN PM may order the Contractor to proceed with extra work as provided in Section 90, paragraph 90-05, *Payment for Extra* 

| ISSUED FOR CONSTRUCTION | RS&H    | REVISION NO 00 |
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| 20 DEC 2024             | GP-40-1 |                |

| TECHNICAL SPECIFICATIONS | DENVER INTERNATIONAL AIRPORT               |
|--------------------------|--|
| GENERAL PROVISIONS       | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| GP-40                    | CONTRACT NO: 202476290                     |
| SCOPE OF WORK            |  |

*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, DEN PM 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) (<u>http://mutcd.fhwa.dot.gov/</u>), 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.

**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 DEN PM shall be notified prior to disturbing such structure. The disposition of existing structures so encountered shall be immediately determined by the DEN PM 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

| TECHNICAL SPECIFICATIONS | DENVER INTERNATIONAL AIRPORT               |
|--------------------------|--|
| GENERAL PROVISIONS       | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| GP-40                    | CONTRACT NO: 202476290                     |
| SCOPE OF WORK            |  |

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 DEN PM 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 DEN PM; 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 DEN PM's approval in advance of such use.

Should the DEN PM 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 DEN PM 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.

TECHNICAL SPECIFICATIONS GENERAL PROVISIONS GP-40 SCOPE OF WORK

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TECHNICAL SPECIFICATIONS GENERAL PROVISIONS GP-50 CONTROL OF WORK

## Section 50 Control of Work

**50-01 Authority of the DEN Project Manager**. The DEN Project Manager (DEN PM) has final authority regarding the interpretation of project specification requirements. The DEN PM 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 DEN PM 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 DEN PM 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 DEN PM will advise the Owner of their determination that the affected work be accepted and remain in place. The DEN PM 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 DEN PM 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 DEN PM'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 DEN PM'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 DEN PM'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 DEN PM 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 DEN PM 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

| TECHNICAL SPECIFICATIONS |
|--------------------------|
| GENERAL PROVISIONS       |
| GP-50                    |
|                          |

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 DEN PM 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.** Refer to Division 1 Specifications. If the Contractor discovers any apparent discrepancy within standard test methods, the Contractor shall immediately ask the DEN Project Manager for an interpretation and decision, and such decision shall be final.

**50-05 Cooperation of Contractor**. The Contractor shall be supplied with 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 DEN PM 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 DEN PM 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 DEN PM 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 DEN PM. 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

| TECHNICAL SPECIFICATIONS |
|--------------------------|
| GENERAL PROVISIONS       |
| GP-50                    |
|                          |

control points for horizontal and vertical accuracy and certify in writing to the DEN PM 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 DEN PM. The Contractor is responsible to establish all layout required for the construction of the project.

Prior to performing the initial control survey, submit a methodology statement to the DEN Project Manager for their review, complete with survey equipment to be utilized and with information as to the accuracy of the equipment.

Copies of survey notes will be provided to the DEN PM for each area of construction and for each placement of material as specified to allow the DEN PM 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 DEN PM 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 and hardcopy.

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 DEN PM 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 DEN PM 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 DEN PM 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 the Contractor's expense.

Provide advance written notice to the DEN PM 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 DEN PM 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

| TECHNICAL SPECIFICATIONS | DENVER INTERNATIONAL AIRPORT               |
|--------------------------|--|
| GENERAL PROVISIONS       | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| GP-50                    | CONTRACT NO: 202476290                     |
| CONTROL OF WORK          |  |

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 DEN PM 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 DEN PM. Work done contrary to the instructions of the DEN PM, work done beyond the lines shown on the plans or as established by the DEN PM, 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 DEN PM made under the provisions of this subsection, the DEN PM 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 DEN PM 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.

TECHNICAL SPECIFICATIONS GENERAL PROVISIONS GP-50 CONTROL OF WORK

Should the Contractor fail to respond to the DEN PM'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 DEN PM to make final inspection of that unit. If the DEN PM finds upon inspection that the unit has been satisfactorily completed in compliance with the contract, the DEN PM 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 DEN PM 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 DEN PM 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 DEN PM 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 DEN PM 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 DEN PM 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 DEN PM is not afforded proper opportunity by the Contractor for keeping strict account of actual cost as required, then the Contractor and the fact that the DEN PM 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 DEN PM 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.

TECHNICAL SPECIFICATIONS GENERAL PROVISIONS GP-50 CONTROL OF WORK

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TECHNICAL SPECIFICATIONS GENERAL PROVISIONS GP-60 CONTROL OF MATERIALS

## **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 DEN PM 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 DEN PM'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 DEN PM before incorporation in the work unless otherwise designated. Any work in which untested materials are used without approval or written permission of the DEN PM 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 DEN PM, 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 DEN PM. 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 DEN PM.

A copy of all Contractor QC test data shall be provided to the DEN PM daily, along with printed reports, in an approved format, on a weekly basis. After completion of the project, and prior to final payment, the Contractor shall submit a final report to the DEN PM 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 DEN PM 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

| TECHNICAL SPECIFICATIONS | DENVER INTERNATIONAL AIRPORT               |
|--------------------------|--|
| GENERAL PROVISIONS       | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| GP-60                    | CONTRACT NO: 202476290                     |
| CONTROL OF MATERIALS     |  |

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 DEN PM.

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 DEN PM shall be the sole judge as to whether the proposed "or equal" is suitable for use in the work.

The DEN PM reserves the right to refuse permission for use of materials or assemblies on the basis of certificates of compliance.

**60-04 Plant inspection**. The DEN PM 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 DEN PM conduct plant inspections, the following conditions shall exist:

**a.** The DEN PM shall have the cooperation and assistance of the Contractor and the producer with whom the Contractor has contracted for materials.

**b.** The DEN PM 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 DEN PM, 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 DEN PM 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's field office. An Engineer/RPR field office is not required.

**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 DEN PM. 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 DEN PM. 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

| TECHNICAL SPECIFICATIONS | DENVER INTERNATIONAL AIRPORT               |
|--------------------------|--|
| GENERAL PROVISIONS       | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| GP-60                    | CONTRACT NO: 202476290                     |
| CONTROL OF MATERIALS     |  |

the storage of materials on private property. Upon request, the Contractor shall furnish the DEN PM 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 DEN PM.

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 DEN PM 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.

TECHNICAL SPECIFICATIONS GENERAL PROVISIONS GP-60 CONTROL OF MATERIALS

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TECHNICAL SPECIFICATIONS GENERAL PROVISIONS GP-70 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

## 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 and is indicated as follows:

See section 011810, Utilities Interface, subsection 1.02B for a listing of the applicable utility owners.

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 DEN PM.

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 DEN PM, 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 DEN PM. If the DEN PM 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 DEN PM 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 included as a separate complete document. Phasing sheets associated with the CSPP are on sheet(s) C010-C015 of the project plans.

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/DEN PM 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/DEN PM 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

| TECHNICAL SPECIFICATIONS                       | DENVER INTERNATIONAL AIRPORT               |
|--|--|
| GENERAL PROVISIONS                             | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| GP-70  | CONTRACT NO: 202476290                     |
| LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC |  |

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.

| Phase or Description                                    | Required Date or Sequence of<br>Owner's Beneficial Occupancy | Work Shown on Plan Sheet |  |
|---|--|--------------------------|--|
| Refer to the Phasing Plans of the Construction Drawings |  |                          |  |

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 DEN PM, 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 DEN PM'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 DEN PM.

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 DEN PM.

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 DEN PM 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 DEN PM 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) through the DEN PM 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 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 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 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, DEN PM, 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 DEN PM. The DEN PM 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. Refer to DEN Project Requirements.

TECHNICAL SPECIFICATIONS GENERAL PROVISIONS GP-80 EXECUTION AND PROGRESS

## **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 DEN Project Manager (DEN PM).

The Contractor shall perform, with his organization, an amount of work equal to at least 35 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 DEN PM 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, email 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 10 days of the NTP date. The Contractor shall notify the DEN PM 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 DEN PM's review and acceptance at least 10 days prior to the start of work. The Contractor's progress schedule, once accepted by the DEN PM, will represent the Contractor's baseline plan to accomplish the project in accordance with the terms and conditions of the Contract. The DEN PM 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 DEN PM'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 DEN PM at least 24 hours in advance of resuming operations.

| TECHNICAL SPECIFICATIONS |  |
|--------------------------|--|
| GENERAL PROVISIONS       |  |
| GP-80                    |  |
| EXECUTION AND PROGRESS   |  |

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 DEN PM) at least 48 hours prior to commencement of such work. The Contractor shall not close an AOA until so authorized by the DEN PM 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) and as listed below, 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 as follows:

| АОА  | Time Periods for<br>Closure | Type of Communications<br>Required | Control Authority |
|--|-----------------------------|------------------------------------|-------------------|
| Refer to Safety & Phasing Plans of the Construction Drawings |                             | DEN Project<br>Manager             |                   |

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.

| TECHNICAL SPECIFICATIONS | DENVER INTERNATIONAL AIRPORT               |
|--------------------------|--|
| GENERAL PROVISIONS       | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| GP-80                    | CONTRACT NO: 202476290                     |
| EXECUTION AND PROGRESS   |  |

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 DEN PM, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the DEN PM, 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 DEN PM.

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 DEN PM 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 DEN PM. 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 DEN PM 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 DEN PM 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 DEN PM 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 DEN PM within the time period stated in the DEN PM's order to resume work. The Contractor shall submit with their own claim information substantiating the amount shown on the claim. The DEN PM 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.

TECHNICAL SPECIFICATIONS GENERAL PROVISIONS GP-80 EXECUTION AND PROGRESS

| Milestone                  | Liquidated Damages Cost   | Allowed Construction<br>Time |
|----------------------------|---------------------------|------------------------------|
| Overall Project            | \$10,000 per Calendar Day | 200 Calendar Days            |
| Phase 1, Work Area 7       | \$5,000 per Calendar Day  | 108 Calendar Days            |
| Phase 1, Work Area 8 South | \$10,000 per Calendar Day | 73 Calendar Days             |
| Phase 3, Work Area 8 North | \$20,000 per Calendar Day | 57 Calendar Days             |

The maximum construction time allowed for the overall project is **200 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 DEN PM 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 DEN PM 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 DEN PM.

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 DEN PM 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 DEN PM, 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 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 DEN PM.

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 DEN PM 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 DEN PM and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

| Term                                       | Description  |
|--|--|
| Excavation and<br>Embankment<br>Volume     | In computing volumes of excavation, the average end area method will be used unless otherwise specified.   |
| Measurement and<br>Proportion by<br>Weight | The term "ton" will mean the short ton consisting of 2,000 pounds 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 DEN PM. 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 DEN PM directs, and each truck shall bear a plainly legible identification mark. |

# **Measurement and Payment Terms**

| Measurement by<br>VolumeMaterials to be measured by volume in the hauling vehicle shall be hauled in approved<br>vehicles and measured therein at the point of delivery. Vehicles for this purpose may be<br>shape that the actual contents may be readily and accurately determined. All vehicles<br>shape that the actual contents may be readily and accurately determined. All vehicles<br>and the loaded to at least their water level capacity, and all loads shall be leveled when<br>the vehicles arrive at the point of delivery.Asphalt MaterialAsphalt materials will be measured at 60°F or will be corrected to the volume at 00°T using<br>such volumes will be measured at 60°F or will be corrected to the volume at 00°T using<br>such volumes in the case of rail shipments will be used as a basis of measurement, subject to<br>correction when asphalts. Net certified scale weights or weights hased on certified<br>volumes in the case of rail shipments will be used as a basis of measurement, subject to<br>correction when asphalt material has been lost from the car or the distributor, wasted, or<br>transport, net certified weights by volume, subject to correction for loss or foaming, will<br>be used for computing quantities.CementCement will be measured by the ton or hundredweight.StructureStructures will be measured by the thousand feet board measure (MFBM) actually<br>incorporated in the structure. Measurement will be based on nominal widths and<br>thicknesses and the extreme length of each piece.Plates and SheetsThe thickness of plates and galvanized sheet used in the manufacture of corrugated metal<br>measured in decimal fraction of inch.Miscellaneous ItemsScales must be tested for accuracy and serviced before use. Scales for weight, section<br>dimensions, etc., such identification will be considered to be nominal weights section<br>dimensions, etc., such  | Term                | Description  |
|---|---------------------|--|
| such volumes will be measured at 60°F or will be corrected to the volume at 60°F using<br>ASTM D1250 for asphalts. Net certified scale weights on weights based on certified<br>volumes in the case of rail shipments will be used as a basis of measurement, subject to<br>correction when asphalt material has been lost from the car or the distributor, wasted, or<br>otherwise not incorporated in the work. When asphalt materials are shipped by truck or<br>otherwise not incorporated in the work. When asphalt materials are shipped by truck or<br>otherwise not incorporated in the work. When asphalt materials are shipped by truck or<br>otherwise not incorporated in the work. When asphalt materials are shipped by truck or<br>otherwise not incorporated in the work. When asphalt materials are shipped by truck or<br>otherwise not eccentrified weights by volume, subject to correction for loss or foaming, will<br>be used for computing quantities.CementCement will be measured according to neat lines shown on the plans or as altered to fit<br>field conditions.TimberTimber will be measured by the thousand feet board measure (MFBM) actually<br>incorporated in the structure. Measurement will be based on nominal widths and<br>thicknesses and the extreme length of each piece.Plates and SheetsThe thickness of plates and galvanized sheet used in the manufacture of corrugated metal<br>pie, metal plate pipe culverts and arches, and metal cribbing will be specified and<br>measured in decimal fraction of inch.Miscellaneous ItemsWhen standard manufactured items are identified by gauge, unit weight, section<br>dimensions, ctc., such identification will be considered to be nominal weights or<br>dimensions, etc., such identification will be considered to be nominal weights or<br>dimensions, etc., such identification will be considered to be nominal weights or<br>dimensions, etc., such identification will                            |                     | vehicles and measured therein at the point of delivery. Vehicles for this purpose may be<br>of any size or type acceptable for the materials hauled, provided that the body is of such<br>shape that the actual contents may be readily and accurately determined. All vehicles<br>shall be loaded to at least their water level capacity, and all loads shall be leveled when   |
| 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 weighting 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 DEN PM before beginning work and at such other times as requested. The intervals shall be uniform in spacing throughout the graduated or marked length of the beam or dial and shall not exceed 0.1% of the no  | Asphalt Material    | such volumes will be measured at 60°F or will be corrected to the volume at 60°F 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 |
| field conditions.TimberTimber will be measured by the thousand feet board measure (MFBM) actually<br>incorporated in the structure. Measurement will be based on nominal widths and<br>thicknesses and the extreme length of each piece.Plates and SheetsThe thickness of plates and galvanized sheet used in the manufacture of corrugated metal<br>pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and<br>measured in decimal fraction of inch.Miscellaneous ItemsWhen standard manufactured items are specified such as fence, wire, plates, rolled<br>shapes, pipe conduit, etc., and these items are identified by gauge, unit weight, section<br>dimensions. Unless more stringently controlled by tolerances in cited specifications,<br>manufacturing tolerances established by the industries involved will be accepted.ScalesScales must be tested for accuracy and serviced before use. Scales for weighing<br>materials which are required to be proportioned or measured and paid for by weight shall<br>be furnished, erected, and maintained by the Contractor, or be certified permanently<br>   | Cement              | Cement will be measured by the ton or hundredweight.   |
| incorporated in the structure. Measurement will be based on nominal widths and<br>thicknesses and the extreme length of each piece.Plates and SheetsThe thickness of plates and galvanized sheet used in the manufacture of corrugated metal<br>pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and<br>measured in decimal fraction of inch.Miscellaneous ItemsWhen standard manufactured items are specified such as fence, wire, plates, rolled<br>shapes, pipe conduit, etc., and these items are identified by gauge, unit weight, section<br>dimensions, etc., such identification will be considered to be nominal weights or<br>dimensions. Unless more stringently controlled by tolerances in cited specifications,<br>manufacturing tolerances established by the industries involved will be accepted.ScalesScales must be tested for accuracy and serviced before use. Scales for weighing<br>materials which are required to be proportioned or measured and paid for by weight shall<br>be furnished, erected, and maintained by the Contractor, or be certified permanently<br>installed commercial scales. Platform scales shall be installed and maintained with the<br>platform level and rigid bulkheads at each end.<br>Scales shall be accurate within 0.5% of the correct weight throughout the range of use.<br>The Contractor shall have the scales checked under the observation of the DEN PM<br>before beginning work and at such other times as requested. The intervals shall be<br>uniform in spacing throughout the graduated or marked length of the beam or dial and<br>shall not exceed 0.1% of the nominal rated capacity of the scale, but not less than one<br>pound. The use of spring balances will not be permitted.<br>In the event inspection reveals the scales have been "overweighing" (indicating more<br>than correct weight) they will be immediately adjusted. All materials received<br>subsequent to the last previou | Structure           |  |
| pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and<br>measured in decimal fraction of inch.Miscellaneous ItemsWhen standard manufactured items are specified such as fence, wire, plates, rolled<br>shapes, pipe conduit, etc., and these items are identified by gauge, unit weight, section<br>dimensions. Unless more stringently controlled by tolerances in cited specifications,<br>manufacturing tolerances established by the industries involved will be accepted.ScalesScales must be tested for accuracy and serviced before use. Scales for weighing<br>materials which are required to be proportioned or measured and paid for by weight shall<br>be furnished, erected, and maintained by the Contractor, or be certified permanently<br>installed commercial scales. Platform scales shall be installed and maintained with the<br>platform level and rigid bulkheads at each end.Scales shall be accurate within 0.5% of the correct weight throughout the range of use.<br>The Contractor shall have the scales checked under the observation of the DEN PM<br>before beginning work and at such other times as requested. The intervals shall be<br>uniform in spacing throughout the graduated or marked length of the beam or dial and<br>shall not exceed 0.1% of the nominal rated capacity of the scale, but not less than one<br>pound. The use of spring balances will not be permitted.In the event inspection reveals the scales have been "overweighing" (indicating more<br>than correct weight) they will be immediately adjusted. All materials received<br>subsequent to the last previous correct weighting-accuracy test will be reduced by the  | Timber              | incorporated in the structure. Measurement will be based on nominal widths and   |
| shapes, pipe conduit, etc., and these items are identified by gauge, unit weight, section<br>dimensions, etc., such identification will be considered to be nominal weights or<br>dimensions. Unless more stringently controlled by tolerances in cited specifications,<br>manufacturing tolerances established by the industries involved will be accepted.ScalesScales must be tested for accuracy and serviced before use. Scales for weighing<br>materials which are required to be proportioned or measured and paid for by weight shall<br>be furnished, erected, and maintained by the Contractor, or be certified permanently<br>installed commercial scales. Platform scales shall be installed and maintained with the<br>platform level and rigid bulkheads at each end.Scales shall be accurate within 0.5% of the correct weight throughout the range of use.<br>The Contractor shall have the scales checked under the observation of the DEN PM<br>before beginning work and at such other times as requested. The intervals shall be<br>uniform in spacing throughout the graduated or marked length of the beam or dial and<br>shall not exceed 0.1% of the nominal rated capacity of the scale, but not less than one<br>pound. The use of spring balances will not be permitted.In the event inspection reveals the scales have been "overweighing" (indicating more<br>than correct weight) they will be immediately adjusted. All materials received<br>subsequent to the last previous correct weighting-accuracy test will be reduced by the   | Plates and Sheets   | pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and   |
| <ul> <li>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.</li> <li>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 DEN PM before beginning work and at such other times as requested. The intervals 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. The use of spring balances will not be permitted.</li> <li>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</li> </ul>  | Miscellaneous Items | 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,  |
| <ul> <li>The Contractor shall have the scales checked under the observation of the DEN PM before beginning work and at such other times as requested. The intervals 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. The use of spring balances will not be permitted.</li> <li>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</li> </ul>   | Scales              | materials which are required to be proportioned or measured and paid for by weight shall<br>be furnished, erected, and maintained by the Contractor, or be certified permanently<br>installed commercial scales. Platform scales shall be installed and maintained with the  |
| 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   |                     | The Contractor shall have the scales checked under the observation of the DEN PM before beginning work and at such other times as requested. The intervals 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   |
|   |                     | than correct weight) they will be immediately adjusted. All materials received   |

| Term             | Description  |  |
|------------------|--|--|
|                  | 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<br>and the DEN PM can safely and conveniently view them.   |  |
|                  | Scale installations shall have available ten standard 50-pound 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 <i>Payment for Extra Work</i> .  |  |
| 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 DEN PM. 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 DEN PM 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 DEN PM 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 DEN PM'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 DEN PM'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 DEN PM'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 DEN PM, 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.

From the total of the amount determined to be payable on a partial payment, 5% 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 DEN PM, the DEN PM 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 DEN PM 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 DEN PM at or on an approved site.

**b.** The Contractor has furnished the DEN PM with acceptable evidence of the quantity and quality of such stored or stockpiled materials.

**c.** The Contractor has furnished the DEN PM 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.

| TECHNICAL SPECIFICATIONS | DENVER INTERNATIONAL AIRPORT               |
|--------------------------|--|
| GENERAL PROVISIONS       | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| GP-90                    | CONTRACT NO. 202476290                     |
| MEASUREMENT AND PAYMENT  |  |

**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 DEN PM will prepare the final estimate of the items of work actually performed. The Contractor shall approve the DEN PM's final estimate or advise the DEN PM 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 DEN PM 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 DEN PM's final estimate. If, after such 30-day period, a dispute still exists, the Contractor may approve the DEN PM'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 DEN PM's final estimate, and after the DEN PM'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.

| TECHNICAL SPECIFICATIONS | DENVER INTERNATIONAL AIRPORT               |
|--------------------------|--|
| GENERAL PROVISIONS       | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| GP-90                    | CONTRACT NO. 202476290                     |
| MEASUREMENT AND PAYMENT  |  |

**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 DEN PM approves the Contractor's final submittal. The Contractor shall:

- **a.** Provide two (2) copies of all manufacturer's 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.
- Equipment commissioning documentation submitted, if required. Meet DEN Division 1, Section 017720 – Contract Closeout requirements.

# END OF SECTION 90

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TECHNICAL SPECIFICATIONS DIVISION 2 – GENERAL CONSTRUCTION ITEMS C-105 MOBILIZATION

# **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 5 percent of the total project cost.

**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. An Engineer/RPR field office is not required.

#### 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 35%.

**d.** After Final Inspection, Staging area clean-up and delivery of all Project Closeout materials as required by Section 90, paragraph 90-11, *Contractor Final Project Documentation*, the final 15%.

#### **BASIS OF PAYMENT**

#### 105-6 Payment will be made under:

Item C-105a Mobilization (5%) – 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

TECHNICAL SPECIFICATIONS DIVISION 2 – GENERAL CONSTRUCTION ITEMS C-105 MOBILIZATION

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

TECHNICAL SPECIFICATIONS DIVISION 2 – GENERAL CONSTRUCTION ITEMS P-101 PREPARATION/REMOVAL OF EXISTING PAVEMENTS

# **Item P-101 Preparation/Removal of Existing Pavements**

# DESCRIPTION

**101-1** This item shall consist of 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 DEN PM. The equipment shall not cause damage to the pavement and structures 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.

1. Underlying Material. The underlying material adjacent to the edge of and under the existing pavement which is to remain in place shall be protected from damage or disturbance during removal operations and until placement of new concrete and shall be shaped as shown on the drawings or as directed. Sufficient material shall be kept in place outside the joint line to prevent disturbance (or sloughing) of material under the pavement which is to remain in place. Any material under the portion of the concrete pavement to remain in place, which is disturbed or loses its compaction, shall be carefully removed and replaced with concrete. The underlying material outside the joint line shall be thoroughly compacted and moist when new concrete is placed. If the disturbed material causes under breaking of concrete panels that are to remain in-place, it shall result in the entire slab removal and replacement at the Contractor's expense to the next joint.

#### 101-3.2 Removal of Pipe and other Structures.

**a. Removal of Existing Pipe Material.** Contractor is responsible to contact the owner as to the status of the pipeline. If pipelines have been abandoned in-place by the pipeline owners, the pipelines may not have been purged or cleaned and may contain petroleum products. The contractor shall exercise extreme care in removing these facilities and is responsible for removing the pipe including any remaining contents, irrespective of the current pipe conditions. The Contractor should also expect to find other pipelines, etc. which have been abandoned by unknown owners during the 15 to 20-year life of the oil and gas fields. Contract documents indicate the general location of known pipelines and developed utilities. All pipelines shown on the drawings shall be located by Contractor by potholing to verify location, depth, and usage. The Contractor shall remove all utility pipes and lines included in the earthwork contract area in accordance with these specifications. All buried pipelines, utilities, buried tanks, and any other structures within the construction area of all runways, taxiways and aprons extending to 10 feet outside the limits of construction and not less than 15 feet below the finished grade level shall be removed. The Contractor shall notify oil and gas facility owners and the DEN Project Manager in

| TECHNICAL SPECIFICATIONS                  | DENVER INTERNATIONAL AIRPORT               |
|---|--|
| DIVISION 2 – GENERAL CONSTRUCTION ITEMS   | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| P-101                                     | CONTRACT NO. 202476290                     |
| PREPARATION/REMOVAL OF EXISTING PAVEMENTS |  |

writing 30 days in advance of requiring work in areas currently occupied by oil and gas wells and buried pipelines.

Piping a minimum of 15 feet below finished grade elevations or plan excavation may be left in place or removed and salvaged at the discretion of the Contractor. The ends of any pipelines left in place shall have the ends capped prior to burial, according to applicable Federal Department of Transportation Regulations. Any piping which is left in place shall be surveyed and the coordinates of the ends of the abandoned pipe (or other items left in place) shall be provided to the DEN Project Manager and included on the "as-built" drawings.

**b.** Removal of Structures. Where indicated on the plans or as directed by the DEN PM, 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 D698, when outside of paved areas must be compacted to 95% of ASTM D698.

c. Removal of Water Wells. There is a possibility that water wells are located in work areas. The wells are permitted by the State of Colorado and shall be abandoned in accordance with current Revised and Amended Rules and Regulations of the Board of Examiners of Water Well Construction and Pump Installation Contractors.

**d.** Foundations and Slabs on Grade. Where indicated on the plans or as directed by the DEN PM, All structures at or above grade and to a depth of not less than 15 feet below the final finished grade line and within 10 feet horizontally of the construction limits shall be removed.

**101-3.3 Waste Disposal.** All removed asphalt and concrete pavements shall be delivered to the recycle yard in accordance with Section 017419 Construction Waste Management. All other demolished materials shall be considered waste and disposed offsite at facilities approved for waste materials, unless specified otherwise.

# **METHOD OF MEASUREMENT**

**P-101a Riprap Demolition.** Measurement for payment for removal of existing riprap shall be made per square yard based on the area approved for removal by DEN and actually removed during construction. The thickness of the existing material to be removed is approximate only and the Contractor will not be reimbursed for areas that may be thicker than shown on the plans. Remove Existing Rip Rap shall include all breaking, excavation, hauling, cleaning and/or disposal (including disposal fees) of rip rap material necessary to facilitate removal and/or reuse of the material on site.

**P-101b Security Fence Demolition.** Measurement for payment for removal of the existing security fence shall be made per linear foot based on the area approved for removal by DEN and removed during construction. Remove existing security fence shall include all breaking, excavation, hauling, cleaning and/or disposal (including disposal fees) of material necessary to facilitate removal and/or reuse of the material on site.

**P-101c Headwall, Wingwalls and Apron Demolition.** Measurement for payment of headwall, wingwall and apron demolition shall be made per lump sum of the existing combined headwall, wingwall, apron, and any existing partial RCP pipe removed in their entirety and removed from site. Remove headwall, wingwall, apron and partial RCP shall include all breaking, excavation, hauling, preservation of existing pipe to remain in place and/or any activity required to facilitate the complete removal of the structures for construction of the new culvert extension.

TECHNICAL SPECIFICATIONS DIVISION 2 – GENERAL CONSTRUCTION ITEMS P-101 PREPARATION/REMOVAL OF EXISTING PAVEMENTS

**P-101d Apron Demolition.** Measurement for payment of apron demolition shall be made per lump sum of the existing apron, removed in its entirety and removed from site. Remove apron and protect headwall & wingwalls shall include all saw cutting, breaking, excavation, hauling, preservation of existing structures and pipe to remain in place and/or any activity required to facilitate the complete removal of the apron for construction of the new concrete channel.

# **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.

Payment will be made under:

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| Item P-101a | Remove Existing Riprap - per square yard                             |
|-------------|--|
| Item P-101b | Remove Existing AOA Security Fence – per linear foot                 |
| Item P-101c | Remove Existing Headwall, Wingwalls & Apron, Complete – per lump sum |
| Item P-101d | Remove Existing Apron, Protect Headwall & Wingwalls - 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.

| 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<br>Concrete and Asphalt Pavements |

# END OF ITEM P-101

TECHNICAL SPECIFICATIONS DIVISION 2 – GENERAL CONSTRUCTION ITEMS P-101 PREPARATION/REMOVAL OF EXISTING PAVEMENTS

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TECHNICAL SPECIFICATIONS DIVISION 2 – SITEWORK P-152 EXCAVATION, SUBGRADE, AND EMBANKMENT

### Item P-152 Excavation, Subgrade, and Embankment

#### DESCRIPTION

**152-1.1** This item covers excavation, disposal, placement, and compaction of all materials within the limits of the work required to construct safety areas, runways, taxiways, aprons, and intermediate areas as well as other areas for drainage, building construction, parking, or other purposes in accordance with these specifications and in conformity to the dimensions and typical sections shown on the plans.

**152-1.2 Classification.** All material excavated shall be classified as defined below:

**a.** Unclassified excavation. Unclassified excavation shall consist of the excavation and disposal of all material, regardless of its nature which is not otherwise classified and paid for under one of the following items, or classified and paid for under other specification items in this contract.

**152-1.3 Unsuitable excavation.** Unsuitable material shall be disposed in designated waste areas as shown on the plans. Materials containing vegetable or organic matter, such as muck, peat, organic silt, or sod shall be considered unsuitable for use in embankment construction. Material suitable for topsoil may be used on the embankment slope when approved by the DEN PM.

**a.** The material beyond the first 12-inches of excavation shall be evaluated. When the moisture in the native soil is measured greater than 2% of optimum, this material will be considered saturated and will be removed and replaced with Class 6 material per the plans (See Detail A/C250). The material that is above 2% optimum moisture will be evaluated by DEN QA. The option to process the material and restore it to an optimum moisture level must be explored before it is quantified as unsuitable material to be replaced.

# **CONSTRUCTION METHODS**

**152-2.1 General.** Before beginning excavation, grading, and embankment operations in any area, the area shall be cleared and stripped of topsoil per T-901.

The suitability of material to be placed in embankments shall be subject to approval by the DEN PM. All unsuitable material shall be disposed of in waste areas as shown on the plans. All waste areas shall be graded to allow positive drainage of the area and adjacent areas. The surface elevation of waste areas shall be specified on the plans or approved by the DEN PM.

When the Contractor's excavating operations encounter artifacts of historical or archaeological significance, the operations shall be temporarily discontinued and the DEN PM notified per Section 70, paragraph 70-20. At the direction of the DEN PM, the Contractor shall excavate the site in such a manner as to preserve the artifacts encountered and allow for their removal. Such excavation will be paid for as extra work.

Areas outside the limits of the pavement areas where the top layer of soil has become compacted by hauling or other Contractor activities shall be scarified and disked to a depth of 4 inches, to loosen and pulverize the soil. Stones or rock fragments larger than 4 inches in their greatest dimension will not be permitted in the top 6 inches of the subgrade.

| TECHNICAL SPECIFICATIONS                   | Ī |
|--|---|
| DIVISION 2 – SITEWORK                      |   |
| P-152 EXCAVATION, SUBGRADE, AND EMBANKMENT |   |

If it is necessary to interrupt existing surface drainage, sewers or under-drainage, conduits, utilities, or similar underground structures, the Contractor shall be responsible for and shall take all necessary precautions to preserve them or provide temporary services. When such facilities are encountered, the Contractor shall notify the DEN PM, who shall arrange for their removal if necessary. The Contractor, at their own expense, shall satisfactorily repair or pay the cost of all damage to such facilities or structures that may result from any of the Contractor's operations during the period of the contract.

**a. Blasting.** Blasting shall not be allowed.

**152-2.2 Excavation.** No excavation shall be started until the work has been staked out by the Contractor and the DEN PM has obtained from the Contractor, the survey notes of the elevations and measurements of the ground surface. The Contractor and DEN PM shall agree that the original ground lines shown on the original topographic mapping are accurate, or agree to any adjustments made to the original ground lines.

Digital terrain model (DTM) files of the existing surfaces, finished surfaces and other various surfaces were used to develop the design plans.

Volumetric quantities were calculated by comparing DTM files of the applicable design surfaces and generating Triangle Volume Reports. Electronic copies of DTM files and a paper copy of the original topographic map will be issued to the successful bidder.

Existing grades on the design cross sections or DTM's, where they do not match the locations of actual spot elevations shown on the topographic map, were developed by computer interpolation from those spot elevations. Prior to disturbing original grade, Contractor shall verify the accuracy of the existing ground surface by verifying spot elevations at the same locations where original field survey data was obtained as indicated on the topographic map. Contractor shall recognize that, due to the interpolation process, the actual ground surface at any particular location may differ somewhat from the interpolated surface shown on the design cross sections or obtained from the DTM's. Contractor's verification of original ground surface, however, shall be limited to verification of spot elevations as indicated herein, and no adjustments will be made to the original ground surface unless the Contractor demonstrates that spot elevations shown are incorrect. For this purpose, spot elevations which are within 0.1 foot of the stated elevations for ground surfaces, or within 0.04 foot for hard surfaces (pavements, buildings, foundations, structures, etc.) shall be considered "no change". Only deviations in excess of these will be considered for adjustment of the original ground surface. If Contractor's verification identifies discrepancies in the topographic map, Contractor shall notify the DEN PM in writing at least two weeks before disturbance of existing grade to allow sufficient time to verify the submitted information and make adjustments to the design cross sections or DTM's. Disturbance of existing grade in any area shall constitute acceptance by the Contractor of the accuracy of the original elevations shown on the topographic map for that area.

All areas to be excavated shall be stripped of vegetation and topsoil. Topsoil shall be stockpiled for future use in areas designated on the plans or by the DEN PM. All suitable excavated material shall be used in the formation of embankment, subgrade, or other purposes as shown on the plans. All unsuitable material shall be disposed of as shown on the plans.

The grade shall be maintained so that the surface is well drained at all times.

When the volume of the excavation exceeds that required to construct the embankments to the grades as indicated on the plans, the excess shall be used to grade the areas of ultimate development or disposed as directed by the DEN PM. When the volume of excavation is not sufficient for constructing the embankments to the grades indicated, the deficiency shall be obtained from borrow areas.

**a.** Selective grading. When selective grading is indicated on the plans, the more suitable material designated by the DEN PM shall be used in constructing the embankment or in capping the pavement subgrade. If, at the time of excavation, it is not possible to place this material in its final location, it shall

| TECHNICAL SPECIFICATIONS                   |                     |
|--|---------------------|
| DIVISION 2 – SITEWORK                      | RUNWAY <sup>·</sup> |
| P-152 EXCAVATION, SUBGRADE, AND EMBANKMENT |                     |

be stockpiled in approved areas until it can be placed. The more suitable material shall then be placed and compacted as specified. Selective grading shall be considered incidental to the work involved. The cost of stockpiling and placing the material shall be included in the various pay items of work involved.

**b.** Undercutting. Rock, shale, hardpan, loose rock, boulders, or other material unsatisfactory for safety areas, subgrades, roads, shoulders, or any areas intended for turf shall be excavated to a minimum depth of 12 inches below the subgrade or to the depth specified by the DEN PM. Muck, peat, matted roots, or other yielding material, unsatisfactory for subgrade foundation, shall be removed to the depth specified. Unsuitable materials shall be [ disposed of at locations shown on the plans. This excavated material shall be paid for at the contract unit price per cubic yard for Unsuitable Excavation. The excavated area shall be backfilled with suitable material obtained from the grading operations or borrow areas and compacted to specified densities. The necessary backfill will constitute a part of the embankment. Where rock cuts are made, backfill with select material. Any pockets created in the rock surface shall be drained in accordance with the details shown on the plans. Undercutting will be paid as unclassified excavation.

**c. Over-break.** Over-break, including slides, is that portion of any material displaced or loosened beyond the finished work as planned or authorized by the DEN PM. All over-break shall be graded or removed by the Contractor and disposed of as directed by the DEN PM. The DEN PM shall determine if the displacement of such material was unavoidable and their own decision shall be final. Payment will not be made for the removal and disposal of over-break that the DEN PM determines as avoidable. Unavoidable over-break will be classified as "Unclassified Excavation."

**d. Removal of utilities.** The removal of existing structures and utilities required to permit the orderly progress of work will be accomplished by the Contractor as indicated on the plans. All existing foundations shall be excavated at least 2 feet below the top of subgrade or as indicated on the plans, and the material disposed of as directed by the DEN PM. All foundations thus excavated shall be backfilled with suitable material and compacted as specified for embankment or as shown on the plans.

e. Hazardous Materials. Some material (equipment, debris, soil, wastes, etc.) may be affected by hazardous constituents, chemicals or compounds used during oil and gas production, residential development, public improvement construction or agricultural use. Material contaminated or potentially contaminated with hazardous constituents, chemicals or compounds shall be assessed by the contractor regarding the hazardous characteristic(s) of each material. The assessment will be made in accordance with requirements specified by the Colorado Department of Public Health and Environment (CDPHE) and the Colorado Department of Natural Resources - Oil and Gas Conservation Commission (OGCC). The Contractor shall notify the DEN Project Manager in writing immediately upon discovery or suspicion of the existence of such hazardous material.

**152-2.3 Borrow Excavation.** Borrow areas within the airport property are indicated on the plans. Borrow excavation shall be made only at these designated locations and within the horizontal and vertical limits as staked or as directed by the DEN PM. All unsuitable material shall be disposed of by the Contractor as shown on the plans. All borrow pits shall be opened to expose the various strata of acceptable material to allow obtaining a uniform product. Borrow areas shall be drained and left in a neat, presentable condition with all slopes dressed uniformly. Borrow areas shall not create a hazardous wildlife attractant.

**152-2.4 Drainage excavation.** Drainage excavation shall consist of excavating drainage ditches including intercepting, inlet, or outlet ditches; or other types as shown on the plans. The work shall be performed in sequence with the other construction. Ditches shall be constructed prior to starting adjacent excavation operations. All satisfactory material shall be placed in embankment fills; unsuitable material shall be placed in designated waste areas or as directed by the DEN PM. All necessary work shall be performed true to final line, elevation, and cross-section. The Contractor shall maintain ditches constructed on the

TECHNICAL SPECIFICATIONS DIVISION 2 – SITEWORK P-152 EXCAVATION, SUBGRADE, AND EMBANKMENT

project to the required cross-section and shall keep them free of debris or obstructions until the project is accepted.

**152-2.5 Preparation of cut areas or areas where existing pavement has been removed.** In those areas on which a subbase or base course is to be placed, the top 12 inches of subgrade shall be compacted to not less than 100 % of maximum density for non-cohesive soils, and 95% of maximum density for cohesive soils as determined by ASTM D698. As used in this specification, "non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3 as determined by ASTM D4318.

**152-2.6 Preparation of embankment area.** All sod and vegetative matter shall be removed from the surface upon which the embankment is to be placed. The cleared surface shall be broken up by plowing or scarifying to a minimum depth of 6 inches and shall then be compacted per paragraph 152-2.10.

Sloped surfaces steeper than one (1) vertical to four (4) horizontal shall be plowed, stepped, benched, or broken up so that the fill material will bond with the existing material. When the subgrade is part fill and part excavation or natural ground, the excavated or natural ground portion shall be scarified to a depth of 12 inches and compacted as specified for the adjacent fill.

No direct payment shall be made for the work performed under this section. The necessary clearing and grubbing and the quantity of excavation removed will be paid for under the respective items of work.

**152-2.7 Control Strip.** The first half-day of construction of subgrade and/or embankment shall be considered as a control strip for the Contractor to demonstrate, in the presence of the DEN PM, that the materials, equipment, and construction processes meet the requirements of this 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 DEN PM 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 begin until the control strip has been accepted by the DEN PM. The Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved in advance by the DEN PM.

**152-2.8 Formation of embankments.** The material shall be constructed in lifts as established in the control strip, but not less than 6 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.

The lifts shall be placed, to produce a soil structure as shown on the typical cross-section or as directed by the DEN PM. Materials such as brush, hedge, roots, stumps, grass and other organic matter, shall not be incorporated or buried in the embankment.

Earthwork operations shall be suspended at any time when satisfactory results cannot be obtained due to rain, freezing, or other unsatisfactory weather conditions in the field. Frozen material shall not be placed in the embankment nor shall embankment be placed upon frozen material. Material shall not be placed on surfaces that are muddy, frozen, or contain frost. The Contractor shall drag, blade, or slope the embankment to provide surface drainage at all times.

The material in each lift shall be within 0% to 2% of optimum moisture content before rolling to obtain the prescribed compaction. The material shall be moistened or aerated as necessary to achieve a uniform

TECHNICAL SPECIFICATIONS DIVISION 2 – SITEWORK P-152 EXCAVATION, SUBGRADE, AND EMBANKMENT

moisture content throughout the lift. Natural drying may be accelerated by blending in dry material or manipulation alone to increase the rate of evaporation.

The Contractor shall make the necessary corrections and adjustments in methods, materials or moisture content to achieve the specified embankment density.

The contractor will take samples of excavated materials which will be used in embankment for testing and develop a Moisture-Density Relations of Soils Report (Proctor) in accordance with ASTM D698. A new Proctor shall be developed for each soil type based on visual classification.

Density tests will be taken by the contractor for every 1,000 square yards of compacted embankment for each lift which is required to be compacted, or other appropriate frequencies as determined by the DEN PM.

If the material has greater than 30% retained on the 3/4-inch (19.0 mm) sieve, follow AASHTO T-180 Annex Correction of maximum dry density and optimum moisture for oversized particles.

Rolling operations shall be continued until the embankment is compacted to not less than 95% of maximum density for non-cohesive soils, and 90% of maximum density for cohesive soils as determined by ASTM D698. Under all areas to be paved, the embankments shall be compacted to a depth of 24 inches and to a density of not less than 95% percent of the maximum density as determined by ASTM D698. As used in this specification, "non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3 as determined by ASTM D4318.

On all areas outside of the pavement areas, no compaction will be required on the top 6 inches which shall be prepared for a seedbed in accordance with Item T-905.

The in-place field density shall be determined in accordance with ASTM D1556 or ASTM 6938 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.

The Contractor's laboratory shall perform all density tests in the DEN PM's presence and provide the test results upon completion to the DEN PM for acceptance. If the specified density is not attained, the area represented by the test or as designated by the DEN PM shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

Compaction areas shall be kept separate, and no lift shall be covered by another lift until the proper density is obtained.

During construction of the embankment, the Contractor shall route all construction equipment evenly over the entire width of the embankment as each lift is placed. Lift placement shall begin in the deepest portion of the embankment fill. As placement progresses, the lifts shall be constructed approximately parallel to the finished pavement grade line.

When rock, concrete pavement, asphalt pavement, and other embankment material are excavated at approximately the same time as the subgrade, the material shall be incorporated into the outer portion of the embankment and the subgrade material shall be incorporated under the future paved areas. Stones, fragmentary rock, and recycled pavement larger than 4 inches in their greatest dimensions will not be allowed in the top 12 inches of the subgrade. Rockfill shall be brought up in lifts as specified or as directed by the DEN PM and the finer material shall be used to fill the voids forming a dense, compact mass. Rock, cement concrete pavement, asphalt pavement, and other embankment material shall not be disposed of except at places and in the manner designated on the plans or by the DEN PM.

When the excavated material consists predominantly of rock fragments of such size that the material cannot be placed in lifts of the prescribed thickness without crushing, pulverizing or further breaking down the pieces, such material may be placed in the embankment as directed in lifts not exceeding 2 feet in thickness. Each lift shall be leveled and smoothed with suitable equipment by distribution of spalls and

| TECHNICAL SPECIFICATIONS                   |  |  |
|--|--|--|
| DIVISION 2 – SITEWORK                      |  |  |
| P-152 EXCAVATION, SUBGRADE, AND EMBANKMENT |  |  |

finer fragments of rock. The lift shall not be constructed above an elevation 4 feet below the finished subgrade.

There will be no separate measurement of payment for compacted embankment. All costs incidental to placing in lifts, compacting, discing, watering, mixing, sloping, and other operations necessary for construction of embankments will be included in the contract price for excavation, borrow, or other items

**152-2.9 Proof rolling.** The purpose of proof rolling the subgrade is to identify any weak areas in the subgrade and not for compaction of the subgrade. After compaction is completed, the subgrade area shall be proof rolled with a 20 ton Tandem axle Dual Wheel Dump Truck loaded to the legal limit with tires inflated to 100 psi in the presence of the DEN PM. Apply a minimum coverage as specified by the DEN PM, under pavement areas. A coverage is defined as the application of one tire print over the designated area. Soft areas of subgrade that deflect more than 1 inch or show permanent deformation greater than 1 inch shall be removed and replaced with suitable material or reworked to conform to the moisture content and compaction requirements in accordance with these specifications. Removal and replacement of soft areas is incidental to this item.

**152-2.10 Compaction Requirements.** The subgrade under areas to be paved shall be compacted to a depth of 12 inches and to a density of not less than 95 percent of the maximum dry density as determined by ASTM D698. The subgrade in areas outside the limits of the pavement areas shall be compacted to a depth of 12 inches and to a density of not less than 95 percent of the maximum density as determined by ASTM D698. See specification P-304C for Class 6 material compaction requirements.

The material to be compacted shall be within  $0\% \pm 2\%$  of optimum moisture content before being rolled to obtain the prescribed compaction (except for expansive soils). When the material has greater than 30 percent retained on the  $\frac{3}{4}$  inch (19.0 mm) sieve, follow the methods in ASTM D698 or procedures in AASHTO T180 Annex for correction of maximum dry density and optimum moisture for oversized particles. Tests for moisture content and compaction will be taken at a minimum of two tests per day or one test per 1,000 S.Y. of subgrade. All quality assurance testing shall be done by the Contractor's laboratory in the presence of the DEN PM, and density test results shall be furnished upon completion to the DEN PM for acceptance determination.

The in-place field density shall be determined in accordance with 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 within 12 months prior to its use on this contract. The gage shall be field standardized daily.

Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

If the specified density is not attained, the entire lot shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

All cut-and-fill slopes shall be uniformly dressed to the slope, cross-section, and alignment shown on the plans or as directed by the DEN PM and the finished subgrade shall be maintained.

When the native subgrade is considered unsuitable, the material shall be excavated and replaced with P-304C CDOT Class 6 material. The Class 6 material will be static rolled and visually inspected for the first two 6-inch lifts, then tested to 95% max density with a moisture of  $\pm 2\%$  of optimum for the remaining lifts. Proof rolling will be performed on the final lift of material placed.

**152-2.11 Finishing and protection of subgrade.** Finishing and protection of the subgrade is incidental to this item. Grading and compacting of the subgrade shall be performed so that it will drain readily. All low areas, holes or depressions in the subgrade shall be brought to grade. Scarifying, blading, rolling and other methods shall be performed to provide a thoroughly compacted subgrade shaped to the lines and grades shown on the plans. All ruts or rough places that develop in the completed subgrade shall be graded, re-

TECHNICAL SPECIFICATIONS DIVISION 2 – SITEWORK P-152 EXCAVATION, SUBGRADE, AND EMBANKMENT

compacted, and retested. The Contractor shall protect the subgrade from damage and limit hauling over the finished subgrade to only traffic essential for construction purposes.

The Contractor shall maintain the completed course in satisfactory condition throughout placement of subsequent layers. No subbase, base, or surface course shall be placed on the subgrade until the subgrade has been accepted by the DEN PM.

**152-2.12 Haul.** All hauling will be considered a necessary and incidental part of the work. The Contractor shall include the cost in the contract unit price for the pay of items of work involved. No payment will be made separately or directly for hauling on any part of the work.

The Contractor's equipment shall not cause damage to any excavated surface, compacted lift or to the subgrade as a result of hauling operations. Any damage caused as a result of the Contractor's hauling operations shall be repaired at the Contractor's expense.

The Contractor shall be responsible for providing, maintaining and removing any haul roads or routes within or outside of the work area, and shall return the affected areas to their former condition, unless otherwise authorized in writing by the Owner. No separate payment will be made for any work or materials associated with providing, maintaining and removing haul roads or routes.

**152-2.13 Surface Tolerances.** In those areas on which a subbase or base course is to be placed, 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 re-compacted to grade until the required smoothness and accuracy are obtained and approved by the DEN PM. The Contractor shall perform all final smoothness and grade checks in the presence of the DEN PM. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense.

- **a. Smoothness.** The finished surface shall not vary more than +/- ½ 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 +/-0.05 feet of the specified grade.

On safety areas, turfed areas and other designated areas within the grading limits where no subbase or base is to placed, grade shall not vary more than 0.10 feet from specified grade. Any deviation in excess of this amount shall be corrected by loosening, adding or removing materials, and reshaping.

**152-2.14 Topsoil.** When topsoil is specified or required as shown on the plans or under Item T-905, it shall be salvaged from stripping or other grading operations. The topsoil shall meet the requirements of Item T-905. If, at the time of excavation or stripping, the topsoil cannot be placed in its final section of finished construction, the material shall be stockpiled at approved locations. Stockpiles shall be located as shown on the plans and the approved CSPP, and shall not be placed on areas that subsequently will require any excavation or embankment fill. If, in the judgment of the DEN PM, it is practical to place the salvaged topsoil at the time of excavation or stripping, the material shall be placed in its final position without stockpiling or further re-handling.

**152-2.15 Restoring Borrow Areas.** The Contractor shall, upon completion of his borrow excavation activities, prepare the borrow sites for planting by performing the following work:

- **a.** Remove and bury all rock over 6" in dimension in accordance with rock disposal methods as noted under Section 2.2 Excavation P-152.
- **b.** Grade all sites to drain as indicated in these specifications and drawings.

| TECHNICAL SPECIFICATIONS                   | DENVER INTERNATIONAL AIRPORT               |
|--|--|
| DIVISION 2 – SITEWORK                      | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE.2 |
| P-152 EXCAVATION, SUBGRADE, AND EMBANKMENT | CONTRACT NO. 202158115                     |

- c. Remove all trash and other foreign objects so that the areas can be reused for farming purposes.
- **d.** Rip the borrow area site in a manner as approved by the DEN Project Manager. After the area is ripped to the 18 inch depth, the area ripped shall be treated on the surface to reduce excessive surface roughness or cloddiness and produce an area suitable for future seeding. Treatment may include discing, harrowing, cultipacking or other means as approved by the DEN Project Manager. In areas where rock is the predominant surface remaining, the Contractor may spread 18 inches of acceptable material over the rock areas as approved by the DEN Project Manager at no additional cost to the City.

All work required to prepare the borrow area for planting as designated under this section shall be considered as incidental work.

Upon completion of grading operations, stockpiled topsoil shall be handled and placed as shown on the plans and as required in Item T-905. Topsoil shall be paid for as provided in Item T-905. No direct payment will be made for topsoil under Item P-152.

# METHOD OF MEASUREMENT

**152-3.1** Measurement for payment specified by the cubic yard shall be computed by the the comparison of digital terrain model (DTM) surfaces for computation of neat line design quantities. The end area is that bound by the original ground line established by field cross-sections and the final theoretical pay line established by cross-sections shown on the plans, subject to verification by the DEN PM.

**P-152a Unclassified Excavation.** Unclassified excavation shall be measured by the number of cubic yards in its original position as measured by field survey, or by direct field measurement made in presence of DEN Project Manager's representative. Measurement shall not include the quantity of materials excavated without authorization beyond normal slope lines, or the quantity of material used for purposes other than those directed. This item includes excavating, hauling, haul roads, stockpiling, subgrade preparation, embanking and compacting the material excavated at a location on-site (locations as required for grading), and select embankment area placing, spreading, shaping and maintaining of ditches, disposing of unsuitable material off-site, moisture conditioning, and compaction of subgrade and embankment materials. This item includes transporting and depositing the excess excavated material to the DEN stockpile in a manner acceptable to the DEN Project Manager.

**P-152b Unsuitable Excavation.** Unsuitable excavation shall be measured by the number of cubic yards in its original position as measured by field survey, or by direct field measurement made in presence of DEN Project Manager's representative. No measurement shall be made due to foundation or embankment settlement. Measurement shall not include the quantity of materials excavated without authorization beyond normal slope lines, or the quantity of material used for purposes other than those directed. This item includes transporting and depositing the excess excavated material to the DEN stockpile in a manner acceptable to the DEN Project Manager.

**P-152c Embankment (Borrow).** Embankment, borrow shall be measured by the number of cubic yards measured in its final position as measured by field survey, or by direct field measurement made in presence of DEN Project Manager's representative.

TECHNICAL SPECIFICATIONS DIVISION 2 – SITEWORK P-152 EXCAVATION, SUBGRADE, AND EMBANKMENT

# **BASIS OF PAYMENT**

**P-152a Unclassified Excavation** - Payment shall be made at the contract unit price per cubic yard. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item. It includes excavating, hauling, haul roads, stockpiling, subgrade preparation and select embankment area, placing, spreading, shaping and maintaining of ditches, disposing of unsuitable material off-site, moisture conditioning, and compaction of subgrade and embankment materials.

**P-152b Unsuitable Excavation.** Payment shall be made at the contract unit price per cubic yard of unsuitable excavation. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item. It includes excavating, hauling, haul roads, stockpiling, placing, spreading, shaping, disposing of unsuitable material off-site, moisture conditioning, and compaction of subgrade and embankment materials.

**P-152c Embankment, Borrow -** Payment shall be made at the contract unit price per cubic yard. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item. It includes excavating, hauling, haul roads, stockpiling, preparation of subgrade and select embankment area, placing, spreading, shaping and maintaining of ditches, disposing of unsuitable material, moisture conditioning, and compaction of subgrade and embankment materials.

Payment will be made under:

| Item P-152a | Unclassified Excavation - per cubic yard |
|-------------|--|
| Item P-152b | Unsuitable Excavation - per cubic yard   |
| Item P-152c | Embankment (Borrow) - per cubic 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.

American Association of State Highway and Transportation Officials (AASHTO)

| AASHTO T-180 | Standard Method of Test for Moisture-Density Relations of Soils Using a |
|--------------|---|
|              | 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop                       |

ASTM International (ASTM)

| ASTM D698               | Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft <sup>3</sup> (600 kN-m/m <sup>3</sup> ))  |     |
|-------------------------|---|-----|
| ASTM D1556              | Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method   | r   |
| ASTM D1557              | Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft <sup>3</sup> (2700 kN-m/m <sup>3</sup> )) |     |
| ASTM D6938              | Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)                                | 1   |
| Advisory Circulars (AC) |   |     |
| AC 150/5370-2           | Operational Safety on Airports During Construction Software   |     |
|                         |   | 200 |

TECHNICAL SPECIFICATIONS DIVISION 2 – SITEWORK P-152 EXCAVATION, SUBGRADE, AND EMBANKMENT

#### Software

FAARFIELD – FAA Rigid and Flexible Iterative Elastic Layered Design

U.S. Department of Transportation

FAA RD-76-66 Design and Construction of Airport Pavements on Expansive Soils

### END OF ITEM P-152

TECHNICAL SPECIFICATIONS DIVISION 2 – AIRFIELD STANDARDS P-161 GEOTEXTILE

# **ITEM P-161 GEOTEXTILE**

#### DESCRIPTION

**161-1.1** This item shall consist of the work necessary to furnish and install geotextile fabrics on subgrade, complete.

161-1.2 QUALITY ASSURANCE CERTIFICATION. Contractors shall furnish geotextile fabric materials and shall submit to the DEN Project Manager a mill certificate or affidavit signed by a legally authorized official from the company manufacturing the fabric. The mill certificate or affidavit shall attest that the fabric meets chemical, physical, and manufacturing requirements stated in this Specification. Contractors shall also submit to the DEN Project Manager, no later than 45 days prior to commencing work in this section, documented evidence of proven technical competence, past record of satisfactory performance on similar projects, and sufficient capacity to do the volume of work specified herein.

**161-1.3 SUBMITTALS.** All contractors shall furnish to the DEN Project Manager, no later than 45 days prior to delivery of materials to the project, the following data:

- **a.** Complete material specifications, descriptive drawings, and literature.
- **b.** Listing of all exceptions to the requirements specified herein.

**c.** Factory test results of materials certified by fabric manufacturer being similar shall be submitted showing conformance with the requirements of these Specifications and which by actual usage has been demonstrated to be satisfactory for the intended application.

Before commencing the work specified under this section, the Contractor shall submit to the DEN Project Manager for approval all installation drawings, procedures, and a schedule for carrying out the work.

Contractors shall submit certification from manufacturer that the product delivered to the project site will have property values equal to or greater than those specified. Certified property values shall be equal to the average value less 2 standard deviations.

A sample of 1 square foot of the geotextile fabric shall be furnished to the DEN Project Manager from each shipment for verification and testing. The lot number of the roll and the location of the sample obtained must be documented.

Samples of fabric sewn scams and/or securing pins shall also be furnished if required on the project.

**161-1.4 MANUFACTURER'S SERVICES.** A fabric manufacturer's representative shall inspect the site for acceptability and provide technical supervision and assistance at all times during installation of the fabric, and as may be required by the DEN Project Manager.

TECHNICAL SPECIFICATIONS DIVISION 2 – AIRFIELD STANDARDS P-161 GEOTEXTILE

# MATERIALS

**161-2.1 NON-WOVEN GEOTEXTILE FABRIC.** The non-woven geotextile fabric shall be used for areas of unsuitable excavation on top of subgrade prior to aggregate base course placement. For filter fabric installed as a component part of the underdrain system, refer to the requirements in Item D-705. Fabric material shall be a pervious sheet of polyester, polypropylene, polyethylene, or polyamide fibers oriented into a stable network so that the fibers retain their relative position with respect to each other. The fabric shall be composed of continuous or discontinuous (staple) fibers held together through spun bonding, melt bonding, resin bonding, or needle punching. The edges of the fabric shall be salvaged or otherwise finished to prevent the other material from pulling away from the fabric. The fabric shall be woven into a width greater than 6 feet. The fabric shall conform to the physical requirements in Table No. 1.

| Table 1   |   |                               |
|---|---|-------------------------------|
| PHYSICAL REQUIREMEN Physical  | TS (for Nonwove<br>Physical<br>Requirements | n Fabric)<br>Test Method      |
| Thickness, MU., min   | 70  | ASTM D 5199                   |
| Mass (Weight), oz./sq.yd. (g/sq. meter), min.                             | 6.0 (203)                                   | ASTM D 5261                   |
| Water Permittivity sec, min.  | 1.5   | ASTM D 4491 (Falling<br>Head) |
| Apparent Opening Six (AOS), U.S. Standard<br>Sieve Size                   | 50  | ASTM D 4751                   |
| Grab Tensile Strength, lbs. (kg), min                                     | 180 (81)                                    | ASTM D 4632                   |
| Grab Elongation, % min.   | 50  | ASTM D 4632                   |
| Mullen Burst Strength, psi (kPa), min.                                    | 290 (7)                                     | ASTM D 3786                   |
| Puncture Strength, lbs. (kg), min.  | 80 (36)                                     | ASTM D 4833                   |
| Trapezoid Tear Strength, lbs.(kg), min.                                   | 75 (34)                                     | ASTM D 4533                   |
| Seam Efficiency, %  | 70-90                                       | ASTM D 4632                   |
| Hydrocarbon Resistance, % Change  | <20   | USEPA 9090<br>(Modified)      |
| Ultraviolet Radiation Resistance, % Strength Retention, min. at 150 hours | 70  | ASTM D 4355                   |

161-2.2SECURING PINS. Securing pins for geotextile fabric shall be secured with9 inch (225 mm) steel staples having a 3/16 inch (5 mm) diameter with pointed ends.Geotextile fabric over Cement Treated Base (CTB) shall be secured with concrete nails with

| TECHNICAL SPECIFICATIONS        |  |  |
|---------------------------------|--|--|
| DIVISION 2 – AIRFIELD STANDARDS |  |  |
|                                 |  |  |

1.5 inch (38 mm) diameter washers long enough to hold the fabric in place while the next pavement section is placed.

**161-2.3 SEAMS.** Seams shall be required in applications where stress transfer from one geotextile to another is necessary. Seaming may replace overlapping at the Contractor's option.

Seam types shall be a flat or player seam, a "J" type seam, or a butterfly scam. A "J" type seam is preferred. Stitch counts (stitches per inch) shall range from 3 to 7. The standard stitch type shall be a chainstitch.

Sewing machinery shall make a double thread chainstitch, Type 401, and be capable of penetrating four layers of the geotextile. Machines may be hand held or table/equipment mounted, depending on fabric specified.

Sewing thread shall consist of nylon, polypropylene, polyester, or Kevlar thread.

A minimum 2 inches (50 mm) of fabric shall extend beyond the seam threads or a length sufficient to develop the required seam strength.

Seam strength shall be measured using grab-tensile procedures in accordance with ASTM D 4632. Seam efficiency is defined as the ratio of tensile strength across the seam to the strength of the intact fabric.

Factory sewing shall be utilized wherever possible to eliminate or reduce field seams.

**161-2.4 DELIVERY, STORAGE, AND HANDLING OF MATERIAL.** Geotextile materials delivered to site shall be inspected for damage, unloaded, and stored with the minimum of handling. Materials shall not be stored directly on the ground. During shipment and storage, filter cloth shall be furnished with a suitable wrapping for protection against moisture and extended ultraviolet exposure prior to placement. Rolls shall be stored in a manner which protects them from the elements. If stored outdoors, they shall be elevated and protected with a waterproof cover. Materials shall be handled in such a manner as to ensure delivery to the site in sound, undamaged condition.

Contractor shall furnish certified test reports with each shipment of material attesting that the fabric meets tile requirements of this Specification. Each roll shall be labeled or tagged to provide product identification sufficient for inventory and quality control purposes.

**161-2.5 AGGREGATE.** Washed concrete sand may be spread over the asphalt saturated reinforcement grid to facilitate movement of equipment during construction or to prevent damage to the grid. Hot-mix broadcast in front of construction vehicle tires may also be used to serve this purpose for asphalt overlay projects. Excess quantities shall be removed from the grid prior to placing the surface course by blowing or sweeping.

# **PCONSTRUCTION METHODS**

| TECHNICAL SPECIFICATIONS        |
|---------------------------------|
| DIVISION 2 – AIRFIELD STANDARDS |
| P-161 GEOTEXTILE                |

**161-3.1 GENERAL.** The geotextile fabric shall be placed in the manner and at the locations shown in the Drawings or as directed by the DEN Project Manager.

At the time of installation, fabric shall be rejected if it has defects, ribs, holes, flaws, deterioration, or damage incurred during manufacture, transportation, storage, or placement. Visual review of the fabric shall be performed once the fabric has been placed and prior to placement of any overlying materials.

The fabric shall be placed with the machine direction (long dimension) down slope or normal to the natural slope, unless otherwise directed by the DEN Project Manager, and shall be laid smooth and free of tension, stress, folds, wrinkles, or creases. The strips shall be laid smooth to provide a minimum width of 12 inches (300 mm), or greater if specified, of overlap for each joint. Overlap Joints and seams shall be measured as a single layer of cloth.

Securing pins with washers shall be inserted through both strips of overlapped cloth at not greater than the following intervals along a line through the midpoint of the overlap. Securing pins are not necessarily required during installation for underdrains:

| Pin Spacing     | Slope            |
|-----------------|------------------|
| 2 feet (0.60 m) | Steeper than 3:1 |
| 3 feet (1 m)    | 3:1 to 4:1       |
| 5 feet (1.5 m)  | Flatter than 4:1 |

Additional pins regardless of location shall be installed as necessary to prevent any slippage of the filter fabric. Each securing pin shall be pushed through the fabric until the washer bears against the fabric and secures it firmly to the foundation. Bags of soil or other methods approved by the DEN Project Manager shall be used to secure the geotextile during installation.

The fabric shall be protected at all times during construction from contamination by surface runoff and any fabric so contaminated shall be removed and replaced with uncontaminated fabric.

Should the fabric be damaged during any of the installation, the torn or punctured section shall be repaired by placing a piece of fabric which extends at least 18 inches (450 mm) in all directions beyond the damaged area. The fabric shall be sewn, secured with pins and washers as described above, or other methods as approved by the DEN Project Manager.

# **METHOD OF MEASUREMENT**

**161-4.1 GEOTEXTILE FABRIC.** No separate measurement for geotextile fabric shall be made. The geotextile fabric shall be considered incidental to the aggregate base course it is placed under.

TECHNICAL SPECIFICATIONS DIVISION 2 – AIRFIELD STANDARDS P-161 GEOTEXTILE

# **BASIS OF PAYMENT**

**161-5.1 GEOTEXTILE FABRIC.** No separate payment for geotextile fabric shall be made. The geotextile fabric shall be considered incidental to the aggregate base course it is placed under.

# MATERIAL REQUIREMENTS

| ASTM D 5199 | Method for Measuring Thickness of Textile Materials  |
|-------------|--|
| ASTM D 5261 | Test Method for Mass per Unit Area (Weight) of Woven Fabric  |
| ASTM D 3786 | Test Method for Hydraulic Bursting Strength of Knitted Goods and<br>Nonwoven Fabrics: Diaphragm Bursting Strength Tester Method. |
| ASTM D 4355 | Test Method for Deterioration of Geotextiles from Exposure to ultraviolet Light and Water (Xenon-Arc Type Apparatus)             |
| ASTM D 4491 | Test Methods for Water Permeability of Geotextiles by Permittivity   |
| ASTM D 4533 | Test Method for Trapezoid-Tearing Strength of Geotextiles  |
| ASTM D 4632 | Test Method for Breaking Load and Elongation of Geotextiles (Grab Method)  |
| ASTM D 4751 | Test Method for Determining the Apparent Opening Size of a Geotextile  |
| ASTM D 4833 | Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products.  |
| ASTM D 6637 | Standard Test Method for Determining Tensile Properties of Geogrids<br>by the Single or Multi-Rib Tensile Method                 |
| ASTM D 276  | Standard Test Methods for Identification of Fibers in Textiles   |
| USEPA 9090  | Compatibility Test for Wastes and Membrane Liners  |
| AASHTO M226 | Standard Specification for Viscosity-Graded Asphalt Cement   |
|             |  |

# END OF ITEM P-161

TECHNICAL SPECIFICATIONS DIVISION 2 – AIRFIELD STANDARDS P-161 GEOTEXTILE

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# ITEM P-304C CDOT AGGREGATE BASE COURSE

#### DESCRIPTION

**304C-1.1** This work consists of furnishing and placing one or more courses of aggregate on a prepared subgrade.

#### MATERIALS

**304C-2.1** AGGREGATE Aggregates for bases shall be crushed stone, crushed slag, crushed gravel, natural gravel, or crushed reclaimed concrete or asphalt material which conforms to the quality requirements of AASHTO M 147 except that the requirements for the ratio of minus No. 200 sieve fraction to the minus No. 40 sieve fraction, stated in 2.2.2 of AASHTO M 147, shall not apply. Aggregates for bases shall meet the grading requirements of Table 1. The liquid limit shall not be greater than 30 and the plasticity index shall not exceed 6 when the aggregate is tested in accordance with AASHTO T 89 and T 90 respectively.

| Sieve Size | Design Range - Percentage by Weight |
|------------|-------------------------------------|
| 3/4 in     | 100                                 |
| No. 4      | 30-65                               |
| No. 8      | 25-55                               |
| No. 200    | 3-12                                |

 TABLE 1

 CLASSIFICATION FOR AGGREGATE BASE COURSE

Samples shall be taken by the Contractor for initial aggregate requirements and gradation. Acceptance will be based on random samples taken from each lift.

#### **304C-2.2 SAMPLING AND TESTING**

**a.** Aggregate base materials. Samples shall be taken by the Contractor for initial aggregate subbase requirements and gradation. Material shall meet the requirements in paragraphs 304C-2.1. The Contractor shall submit to the Resident Project Representative (RPR) certified test results showing that the aggregate meets the Material requirements of this section. Tests shall be representative of the material to be used for the project.

**b. Gradation requirements.** The Contractor shall take at least one aggregate base sample per day in the presence of the RPR to check the final gradation. Samples shall be taken from the in-place, uncompacted material at sampling locations determined by the RPR on a random basis per ASTM D3665. Results shall be furnished to the RPR by the Contractor each day during construction.

# **CONSTRUCTION METHODS**

**304C-3.1 PLACING.** If the required compaction depth of the aggregate base course exceeds 6 inches, it shall be constructed in two or more layers of approximately equal thickness. The maximum compacted thickness of any one layer shall not exceed 6 inches.

**304C-3.2 MIXING.** The Contractor shall mix the aggregate by methods that insure a thorough and homogeneous mixture.

**304C-3.3 SHAPING AND COMPACTION.** Compaction of each layer shall continue until a density of not less than 95 percent of the maximum density determined in accordance with AASHTO T 180 as modified by CP 23 has been achieved. The moisture content shall be at +/-2 percent of optimum moisture content prior to compaction. The surface of each layer shall be maintained during the compaction operations so that a uniform texture is produced, and the aggregates are firmly keyed. Moisture conditioning shall be performed uniformly during compaction.

Compaction of each reclaimed asphalt pavement aggregate layer shall continue until a wet density of not less than 95 percent of the maximum wet density when determined in accordance with a one point AASHTO T 180, Method D test has been achieved.

The surface of the base course will be tested with a 12-foot straightedge. The surface shall be tested prior to placement of the pavement. The variation of the surface from the testing edge of the straightedge between any two contacts with the surface shall not exceed 3/8-inch. All irregularities exceeding the specified tolerance shall be corrected to the satisfaction of the DEN Project Manager at no additional cost to the Owner.

The Contractor's laboratory shall perform all density tests in the RPR's presence and provide the test results upon completion to the RPR for acceptance.

The 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 1,200 square yards. Sampling locations will be determined on a random basis per ASTM D3665. If the specified density is not attained, the area represented by the failed test shall be reworked and/or recompacted and two additional random tests made. This procedure shall be followed until the specified density is reached.

The final lift of material placed shall be proof rolled per specification P-152 requirements. Removal and replacement of soft areas is incidental to this item.

# METHOD OF MEASUREMENT

**304C-4.1** Construction of Class 6 service road shall be measured by the number of square yards of road section constructed as specified, complete and accepted by the DEN Project Manager.

**304C-4.2** Crushed Aggregate Base Course, CDOT Class 6 shall be measured by the number of cubic yards of material actually constructed and accepted by the DEN PM as complying with the plans and specifications. This line item shall also be used for as needed to backfill any over excavated unsuitable material. The amount or excavated unsuitable material and associated CDOT Class 6 backfill shall be approved by the DEN Project Manager prior to proceeding with unsuitable material work. Failure to obtain DEN Project Manager approval prior to work may result in the contractor being fully responsible for the costs associated with this line item.

# **BASIS OF PAYMENT**

**304C-5.1** Payment shall be made at the contract unit price per square yard of unpaved CDOT Class 6 service road complete construction. This price shall be full compensation for all preparation, placement, hauling/delivery, subgrade preparation, and for all labor, equipment, tools, and incidentals necessary to complete the item. Recycled crushed concrete adhering to the requirements of this specification shall be provided by DEN. Dewatering, over excavation of existing soils, and compaction water will not be measured and paid for separately but shall be included in the work.

**304C-5.2** Payment shall be made at the contract unit price per cubic yard for crushed aggregate base course, CDOT Class 6. This price shall be full compensation for all preparation, placement, hauling/delivery, subgrade preparation, and for all labor, equipment, tools, and incidentals necessary to complete the item. Recycled crushed concrete adhering to the requirements of this specification shall be provided by DEN. Dewatering, over excavation of existing soils, and compaction water will not be measured and paid for separately but shall be included in the work.

Payment will be made under:

| Item P-304Ca          | Construct Unpaved CDOT Class 6 Service Road, Complete – Per Square Yard                                    |  |
|-----------------------|--|--|
| Item P-304Cb          | Crushed Aggregate Base Course, CDOT Class 6 – Per Cubic Yard   |  |
| TESTING REQUIREMENTS  |  |  |
| AASHTO T 89           | Standard Method Test for Determining the Liquid Limit of Soils   |  |
| AASHTO T 90           | Standard Method of Test for Determining the Plastic Limit and Plasticity Index of Soils                    |  |
| AASHTO T 180          | Standard Method of Test for Moisture-Density Relations of Soils  |  |
| MATERIAL REQUIREMENTS |  |  |
| AASTHO M 147          | Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase,<br>Base and Surface Courses |  |

# END OF ITEM P-304C

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TECHNICAL SPECIFICATIONS DIVISION 2 – MISCELLANEOUS P-605 JOINT SEALANTS FOR CONCRETE PAVEMENTS

# 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 D 5893 for concrete joints.

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  $25\% \pm 5\%$  larger in diameter than the nominal width of the joint.

**605-2.3 Bond breaking tapes.** Provide a bond breaking tape or separating material that is a flexible, non-shrinkable, non-absorbing, non-staining, and non-reacting adhesive-backed tape. The material shall have a melting point at least 5°F greater than the pouring temperature of the sealant being used when tested in accordance with ASTM D789. The bond breaker tape shall be approximately 1/8 inch wider than the nominal width of the joint and shall not bond to the joint sealant.

# **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 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, 14 days prior to use on the project.

**a.** 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.

**b.** 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

| TECHNICAL SPECIFICATIONS              | DENVER INTERNATIONAL AIRPORT               |
|---------------------------------------|--|
| DIVISION 2 – MISCELLANEOUS            | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| P-605                                 | CONTRACT NO: 202476290                     |
| JOINT SEALANTS FOR CONCRETE PAVEMENTS |  |

paragraph 605-3.3. The Contractor shall demonstrate, in the presence of the DEN PM, that the method cleans the joint and does not damage the joint.

**c. Waterblasting equipment**. 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.

**d. 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.

**e. Hot-poured sealing equipment**. The unit applicators used for heating and installing ASTM D6690 joint sealant materials shall be mobile and shall be equipped with a double-boiler, agitator-type kettle with an oil medium in the outer space for heat transfer; a direct-connected pressure-type extruding device with a nozzle shaped for inserting in the joint to be filled; positive temperature devices for controlling the temperature of the transfer oil and sealant; and a recording type thermometer for indicating the temperature of the sealant. The applicator unit shall be designed so that the sealant will circulate through the delivery hose and return to the inner kettle when not in use.

**f. 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 DEN PM, 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 or concrete saw as specified in paragraph 605-3.2. The newly exposed concrete joint faces and the pavement surface extending a minimum of 1/2 inch 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 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.

| TECHNICAL SPECIFICATIONS              | DENVER INTERNATIONAL AIRPORT               |
|---------------------------------------|--|
| DIVISION 2 – MISCELLANEOUS            | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| P-605                                 | CONTRACT NO: 202476290                     |
| JOINT SEALANTS FOR CONCRETE PAVEMENTS |  |

**d. Bond-breaking tape.** Where inserts or filler materials contain bitumen, or the depth of the joint opening does not allow for the use of a backup material, insert a bond-separating tape breaker in accordance with paragraph 605-2.3 to prevent incompatibility with the filler materials and three-sided adhesion of the sealant. Securely bond the tape to the bottom of the joint opening so it will not float up into the new sealant.

**605-3.4 Installation of sealants.** Joints shall be inspected for proper width, depth, alignment, and preparation, and shall be approved by the DEN PM before sealing is allowed. Sealants shall be installed in accordance with the following requirements:

Immediately preceding, but not more than 50 feet ahead of the joint sealing operations, perform a final cleaning with compressed air. Fill the joints from the bottom up to 1/4 inch  $\pm 1/16$  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 DEN PM. 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.

**605-3.7 FIELD TEST.** Before sealing the joints, the Contractor shall demonstrate that the equipment and procedures for preparing, mixing, and placing the sealant will produce a satisfactory joint seal. The demonstration shall include the preparation of at least two small batches and the application of the resulting material in five joints of at least 25 feet in length each. A representative of the joint sealant manufacturer shall be present at the demonstration to ensure that the installation procedures are in accordance with the manufacturer's recommended installation instructions.

a. Testing For Cold Applied Silicone Sealants. When checking for adhesions of silicone, a pull test may be performed on the job site 21 days after the sealant has been placed.

- 1. Make a knife cut horizontally across and through the silicone from one side of the joint to the other.
- 2. Make a vertical cut approximately 2-3 inches long on each side of the joint starting at the horizontal cut, keeping the cuts the same length on each side.
- **3.** Hold the piece of silicone firmly and slowly pull at a 90 degree angle stretching the silicone not more than 10" per minute as if trying to pull the adhered silicone out of the joint.
- 4. If adhesion is proper, the silicone will not pull out of the joint, but will eventually tear cohesively across the joint at the base of the knife cut.

| TECHNICAL SPECIFICATIONS              | DENVER INTERNATIONAL AIRPORT               |
|---------------------------------------|--|
| DIVISION 2 – MISCELLANEOUS            | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| P-605                                 | CONTRACT NO: 202476290                     |
| JOINT SEALANTS FOR CONCRETE PAVEMENTS |  |

**b.** If the silicone releases from the joint, adhesion has been affected. Several possible causes are:

- 1. Moisture in the joint during sealant application
- 2. Dirty of dusty joint sidewalls
- **3.** Improper application (overfilling, etc.)
- 4. Spalling of the joint walls. (pieces of the concrete will be adhered to the silicone)

c. Repair of Sealant In Areas of Adhesion Test. The silicone sealant may be replaced by simply applying additional new silicone (normally using a tube of like silicone) in the same manner as it was originally placed, providing good adhesion was achieved. Proper preparation of the area should be performed prior to reapplying the silicone assuring the original silicone and the newly applied silicone are in good contact with each other.

**605-3.8 WARRANTY.** The manufacturer shall provide a warranty on the materials furnished for a minimum of 1 year from the date of acceptance by the DEN Project Manager. The Contractor shall provide a warranty on the installation for a minimum of 1 year from the date of acceptance by the DEN Project Manager.

#### METHOD OF MEASUREMENT

**605-4.1** No separate measurement for joint sealant filler shall be made. Joint sealant filler shall be incidental to concrete channel construction.

#### **BASIS OF PAYMENT**

**605-5.1** No separate payment for joint sealant filler shall be made. Joint sealant filler shall be incidental to concrete channel construction

#### 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-<br>Applied Joint Sealants in Portland-Cement Concrete and Asphalt Joints |
| ASTM D5893 | Standard Specification for Cold Applied, Single Component, Chemically<br>Curing Silicone Joint Sealant for Portland Cement Concrete Pavements   |
| ASTM D6690 | Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt  |

TECHNICAL SPECIFICATIONS DIVISION 2 – MISCELLANEOUS P-605 JOINT SEALANTS FOR CONCRETE PAVEMENTS

Advisory Circulars (AC)

AC 150/5340-30

Design and Installation Details for Airport Visual Aids

# END ITEM P-605

TECHNICAL SPECIFICATIONS DIVISION 2 – MISCELLANEOUS P-605 JOINT SEALANTS FOR CONCRETE PAVEMENTS

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TECHNICAL SPECIFICATIONS DIVISION 2 – MISCELLANEOUS P-610 CONCRETE FOR MISCELLANEOUS STRUCTURES

## 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 DEN PM 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. The laboratory performing the tests shall be accredited in accordance with ASTM C1077. The laboratory accreditation must be current and listed on the accrediting authority's website. Test method ASTM C1260 must be listed on the lab accreditation. A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the DEN Project Manager prior to start of construction. Test results shall be submitted to the DEN PM. 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 expansion of either the coarse or fine aggregate exceeds 0.08% at 14 days, limit the alkali of the concrete to be less than or equal to 3.0 lb per cubic yard (1.8 kg per cubic meter), calculated in accordance with EB 106

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.

**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.

| TECHNICAL SPECIFICATIONS              |  |
|---------------------------------------|--|
| DIVISION 2 – MISCELLANEOUS            |  |
| P-610                                 |  |
| CONCRETE FOR MISCELLANEOUS STRUCTURES |  |

| Maximum Aggregate Size                     | ASTM C33, Table 3 Grading<br>Requirements (Size No.) |
|--|--|
| 1 1/2 inch (37.5 mm)                       | 467 or<br>4 and 67                                   |
| 1 inch (25 mm)                             | 57   |
| <sup>3</sup> / <sub>4</sub> inch (19 mm)   | 67   |
| <sup>1</sup> / <sub>2</sub> inch (12.5 mm) | 7  |

# **Coarse Aggregate Grading Requirements**

**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-501-2.1c.

| Material Test   | Requirement   | Standard   |
|---|---|------------|
| Resistance to Degradation   | Loss: 40% maximum   | ASTM C131  |
| Soundness of Aggregates<br>by Use of Sodium Sulfate or<br>Magnesium Sulfate | Loss after 5 cycles:<br>12% maximum using Sodium sulfate - or -<br>18% maximum using magnesium sulfate  | ASTM C88   |
| Flat, Elongated, or Flat and<br>Elongated Particles                         | 8% maximum, by weight, of flat, elongated, or<br>flat and elongated particles at 5:1 for any size<br>group coarser than 3/8 (9.5 mm) sieve <sup>1</sup> | ASTM D4791 |
| Bulk density of slag <sup>2</sup>   | Weigh not less than 70 pounds per cubic foot  | ASTM C29   |
| D-cracking (Freeze-Thaw) <sup>3</sup>                                       | Durability factor $\geq 95$   | ASTM C666  |

#### **Coarse Aggregate Material Requirements**

<sup>1</sup> 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).

<sup>2</sup> Only required if slag is specified.

<sup>3</sup> 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 TECHNICAL SPECIFICATIONS DIVISION 2 – MISCELLANEOUS P-610 CONCRETE FOR MISCELLANEOUS STRUCTURES

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.

**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 - Type I, II. or V ASTM C595 - Type IS, IP, IL, or IT ASTM C1157 – Types GU, HS, MH, or LH

#### 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 DEN PM.

**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 DEN PM 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 DEN PM 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 DEN PM. 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.

TECHNICAL SPECIFICATIONS DIVISION 2 – MISCELLANEOUS P-610 CONCRETE FOR MISCELLANEOUS STRUCTURES

**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 reinforcing steel, bar mats and wire fabric conforming to the requirements of ASTM A 184.

610-2.11 Materials for curing concrete. Curing materials shall conform to ASTM C309.

#### **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 DEN PM.

**610-3.2 Concrete Mixture.** The concrete shall develop a compressive strength of 4,500 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 (cement plus fly ash) per cubic yard. A minimum of 20% of Type F fly ash shall be used in the concrete mix for sulfate resistance. The water cementitious ratio shall not exceed 0.45 by weight. The air content of the concrete shall be 5% +/- 1.5% 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 DEN PMs 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 DEN PM. 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.

| TECHNICAL SPECIFICATIONS              | DENVER INTERNATIONAL AIRPORT               |
|---------------------------------------|--|
| DIVISION 2 – MISCELLANEOUS            | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
|                                       |  |
| P-610                                 | CONTRACT NO: 202476292                     |
| CONCRETE FOR MISCELLANEOUS STRUCTURES |  |

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 DEN PM. 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 85°F, 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 DEN PM 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 first load of concrete, per mix, delivered each day will be sampled and tested.

Concrete placed for structures and trickle channel will be sampled and tested for each additional 50 cubic yards per day with a minimum one test per structure. When a single load of concrete is used for more than one structure, that load will be sampled and tested once.

Concrete strengths for acceptance shall be the average of at least two 6 by 12 inch or at least three 4 by 8 inch cylinders tested at 28 days.

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 laterally as measured by a Contractor provided licensed surveyor on 25-foot stations.

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 <sup>1</sup>/<sub>4</sub> inch in 12 feet, identifying areas that may pond water. If the smoothness criteria is not met, appropriate changes and corrections to the construction process shall be made by the Contractor before construction continues.

**610-4.2 Defective work.** Any defective work that cannot be satisfactorily repaired as determined by the DEN PM, 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 to D-752 and no separate measurement shall be made.

## **BASIS OF PAYMENT**

610-6.1 Concrete shall be considered incidental to D-752 and no separate payment shall be made

#### 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<br>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<br>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                  |
|           |   |

| TECHNICAL SPECIFICATIONS<br>DIVISION 2 – MISCELLANEOUS | DENVER INTERNATIONAL AIRPORT<br>RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2<br>CONTRACT NO: 202475202   |
|--|--|
| P-610<br>CONCRETE FOR MISCELLANEOU                     | JS STRUCTURES CONTRACT NO: 202476292   |
|  |  |
| 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  |
| <b>ASTM C989</b>                                       | 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<br>Aggregates for Use in Construction and Criteria for Testing Agency<br>Evaluation |
| ASTM C1157   | Standard Performance Specification for Hydraulic Cement  |

| TECHNICAL SPECIFICATIONS              | DENVER INTERNATIONAL AIRPORT               |
|---------------------------------------|--|
| DIVISION 2 – MISCELLANEOUS            | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| P-610                                 | CONTRACT NO: 202476292                     |
| CONCRETE FOR MISCELLANEOUS STRUCTURES |  |

| 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<br>Portland Cement and Portland-Cement Clinker Using X-Ray Powder<br>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<br>Paving and Structural Construction (Nonextruding and Resilient Asphalt<br>Types)    |
| ASTM D1752 | Standard Specification for Preformed Sponge Rubber Cork and Recycled<br>PVC Expansion Joint Fillers for Concrete Paving and Structural<br>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

TECHNICAL SPECIFICATIONS DIVISION 2 – DRAINAGE D-701 PIPE FOR STORM DRAINS AND CULVERTS

## Item D-701 Pipe for Storm Drains and Culverts

## DESCRIPTION

**701-1.1** This item shall consist of the construction of pipe culverts and storm drains in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the plans.

#### MATERIALS

**701-2.1** Materials shall meet the requirements shown on the plans and specified below. Underground piping and components used in drainage systems for terminal and aircraft fueling ramp drainage shall be noncombustible and inert to fuel in accordance with National Fire Protection Association (NFPA) 415.

**701-2.2 Pipe.** The pipe shall be of the type called for on the plans or in the proposal and shall be in accordance with the following appropriate requirements:

ASTM C76 Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe

701-2.3 Concrete. Concrete for pipe cradles shall be in accordance with Item P-610.

**701-2.4 Rubber Gaskets.** Rubber gaskets for rigid pipe shall conform to the requirements of ASTM C443. Rubber gaskets for PVC pipe, polyethylene, and polypropylene pipe shall conform to the requirements of ASTM F477. Rubber gaskets for zinc-coated steel pipe and precoated galvanized pipe shall conform to the requirements of ASTM D1056, for the "RE" closed cell grades. Rubber gaskets for steel reinforced thermoplastic ribbed pipe shall conform to the requirements of ASTM F477.

**701-2.5 Joint Mortar.** Pipe joint mortar shall consist of one part Portland cement and two parts sand. The Portland cement shall conform to the requirements of ASTM C150, Type I. The sand shall conform to the requirements of ASTM C144.

701-2.6 Joint Fillers. Poured filler for joints shall conform to the requirements of ASTM D6690.

701-2.7 Plastic Gaskets. Plastic gaskets shall conform to the requirements of ASTM C990.

**701-2.8.** Controlled low-strength material (CLSM). Controlled low-strength material shall conform to the requirements of Item P-153. When CLSM is used, all joints shall have gaskets.

701-2.9 Precast Box Culverts. Manufactured in accordance with and conforming to ASTM C1433.

**701-2.10 Precast Concrete Pipe.** Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or American Concrete Pipe Association QCast Plant Certification program.

# **CONSTRUCTION METHODS**

**701-3.1 Excavation.** The width of the pipe trench shall be sufficient to permit satisfactory jointing of the pipe and thorough tamping of the bedding material under and around the pipe, but it shall not be less than

the external diameter of the pipe plus 12 inches on each side. The trench walls shall be approximately vertical.

The Contractor shall comply with all current federal, state and local rules and regulations governing the safety of men and materials during the excavation, installation and backfilling operations. Specifically, the Contractor shall observe that all requirements of the Occupational Safety and Health Administration (OSHA) relating to excavations, trenching and shoring are strictly adhered to. The width of the trench shall be sufficient to permit satisfactorily jointing of the pipe and thorough compaction of the bedding material under the pipe and backfill material around the pipe, but it shall not be greater than the widths shown on the plans trench detail.

Where rock, hardpan, or other unyielding material is encountered, the Contractor shall remove it from below the foundation grade for a depth of at least 8 inch or 1/2 inch for each foot of fill over the top of the pipe (whichever is greater) but for no more than three-quarters of the nominal diameter of the pipe. The excavation below grade should be filled with granular material to form a uniform foundation.

Where a firm foundation is not encountered at the grade established, due to soft, spongy, or other unstable soil, the unstable soil shall be removed and replaced with approved granular material for the full trench width. The DEN PM shall determine the depth of removal necessary. The granular material shall be compacted to provide adequate support for the pipe.

The excavation for pipes placed in embankment fill shall not be made until the embankment has been completed to a height above the top of the pipe as shown on the plans.

In the event of ground water invasion of the trench, the contractor shall be responsible for all dewatering work as subsidiary to the contract pay items. There will be no additional payment for pumping, dewatering wells, over excavation, etc. due to ground water.

**701-3.2 Bedding.** The bedding surface for the pipe shall provide a foundation of uniform density to support the pipe throughout its entire length.

**a. Rigid pipe.** The pipe bedding shall be constructed uniformly for the full length of the pipe barrel, as required on the plans. The maximum aggregate size shall be 1 in when the bedding thickness is less than 6 inches, and 1-1/2 in when the bedding thickness is greater than 6 inches. Bedding shall be loosely placed uncompacted material under the middle third of the pipe prior to placement of the pipe.

**b. Flexible pipe.** Not Used

**c.** Other pipe materials. For PVC, polyethylene, polypropylene, or fiberglass pipe, the bedding material shall be in accordance with Item D-705.

**701-3.3 Laying pipe.** The pipe laying shall begin at the lowest point of the trench and proceed upgrade. The lower segment of the pipe shall be in contact with the bedding throughout its full length. Bell or groove ends of rigid pipes and outside circumferential laps of flexible pipes shall be placed facing upgrade.

Paved or partially lined pipe shall be placed so that the longitudinal center line of the paved segment coincides with the flow line.

Elliptical and elliptically reinforced concrete pipes shall be placed with the manufacturer's reference lines designating the top of the pipe within five degrees of a vertical plane through the longitudinal axis of the pipe.

**701-3.4 Joining pipe.** Joints shall be made with (1) cement mortar, (2) cement grout, (3) rubber gaskets, (4) plastic gaskets, (5) coupling bands.

Mortar joints shall be made with an excess of mortar to form a continuous bead around the outside of the pipe and shall be finished smooth on the inside. Molds or runners shall be used for grouted joints to retain the poured grout. Rubber ring gaskets shall be installed to form a flexible watertight seal.

**a.** Concrete pipe. Concrete pipe may be either bell and spigot or tongue and groove. Pipe sections at joints shall be fully seated and the inner surfaces flush and even. Concrete pipe joints shall be sealed with butyl mastic meeting ASTM C990 or mortar when soil tight joints are required. Joints shall be thoroughly wetted before applying mortar or grout.

**b. Metal pipe.** Metal pipe shall be firmly joined by form-fitting bands conforming to the requirements of ASTM A760 for steel pipe and AASHTO M196 for aluminum pipe.

**c. PVC, Polyethylene, or Polypropylene pipe.** Joints for PVC, Polyethylene, or Polypropylene pipe shall conform to the requirements of ASTM D3212 when leak resistant joints are required. Joints for PVC and Polyethylene pipe shall conform to the requirements of AASHTO M304 when soil tight joints are required. Fittings for polyethylene pipe shall conform to the requirements of AASHTO M252 or ASTM M294. Fittings for polypropylene pipe shall conform to ASTM F2881, ASTM F2736, or ASTM F2764.

**d.** Fiberglass pipe. Joints and fittings shall be as detailed on the plans and in accordance with the manufacturers recommendations.

**701-3.5 Embedment and Overfill.** Pipes shall be inspected before any fill material is placed; any pipes found to be out of alignment, unduly settled, or damaged shall be removed and re-laid or replaced at the Contractor's expense.

#### 701-3.5-1 Embedment Material Requirements

**a.** Concrete Pipe. Embedment material and compaction requirements shall be in accordance with the applicable Type of Standard Installation (Types 1, 2, 3, or 4) per ASTM C1479. If a concrete cradle or CLSM embedment material is used, it shall conform to the plan details.

**b. Plastic and fiberglass Pipe.** Embedment material shall meet the requirements of ASTM D3282, A-1, A-2-4, A-2-5, or A-3. Embedment material shall be free of organic material, stones larger than 1.5 inches in the greatest dimension, or frozen lumps. Embedment material shall extend to 12 inches above the top of the pipe.

**c. Metal Pipe.** Embedment material shall be granular as specified in the contract document and specifications, and shall be free of organic material, rock fragments larger than 1.5 inches in the greatest dimension and frozen lumps. As a minimum, backfill materials shall meet the requirements of ASTM D3282, A-1, A-2, or A-3. Embedment material shall extend to 12 inches above the top of the pipe.

#### 701-3.5-2 Placement of Embedment Material

The embedment material shall be compacted in layers not exceeding 6 inches on each side of the pipe and shall be brought up one foot above the top of the pipe or to natural ground level, whichever is greater. Thoroughly compact the embedment material under the haunches of the pipe without displacing the pipe. Material shall be brought up evenly on each side of the pipe for the full length of the pipe.

When the top of the pipe is above the top of the trench, the embedment material shall be compacted in layers not exceeding 6 inches and shall be brought up evenly on each side of the pipe to one foot (30 cm) above the top of the pipe. All embedment material shall be compacted to a density required under Item P-152.

Concrete cradles and flowable fills, such as controlled low strength material (CLSM) or controlled density fill (CDF), may be used for embedment provided adequate flotation resistance can be achieved by restraints, weighing, or placement technique.

| TECHNICAL SPECIFICATIONS            |  |
|-------------------------------------|--|
| DIVISION 2 – DRAINAGE               |  |
| D-701                               |  |
| PIPE FOR STORM DRAINS AND CUI VERTS |  |

It shall be the Contractor's responsibility to protect installed pipes and culverts from damage due to construction equipment operations. The Contractor shall be responsible for installation of any extra strutting or backfill required to protect pipes from the construction equipment.

# 701-3.6 Overfill

Pipes shall be inspected before any overfill is in place. Any pipes found to be out of alignment, unduly settled, or damaged shall be removed and relaid or replaced at the Contractor's expense. Evaluation of any damage to RCP shall be evaluated based on AASHTO R73.

Overfill material shall be place and compacted in layers as required to achieve compaction to at least 95 percent standard proctor per ASTM D698. The soil shall contain no debris, organic matter, frozen material, or stones with a diameter greater than one half the thickness of the compacted layers being placed.

# 701-3.7 Inspection Requirements

a. An initial post installation inspection shall be performed by the DEN PM no sooner than 30 days after completion of installation and final backfill. Clean or flush all lines prior to inspection.

Reinforced concrete pipe shall be inspected, evaluated, and reported on in accordance with ASTM C1840, "Standard Practice for Inspection and Acceptance of Installed Reinforced Concrete Culvert, Storm Drain, and Storm Sewer Pipe." Any issues reported shall include still photo and video documentation. The zoom ratio shall be provided for all still or video images that document any issues of concern by the inspection firm.

# METHOD OF MEASUREMENT

**701-4.1** The length of pipe shall be measured in linear feet of dual pipe culvert in place, completed, and accepted. It shall be measured along the centerline of the dual pipe culvert from end or inside face of structure to the end or inside face of structure, whichever is applicable. All fittings shall be included in the footage as typical pipe sections in the pipe being measured.

**701-4.2** The length of pipe shall be measured in linear feet of pipe in place, completed, and accepted. It shall be measured along the centerline of the pipe from end or inside face of structure to the end or inside face of structure, whichever is applicable. All fittings shall be included in the footage as typical pipe sections in the pipe being measured.

#### **BASIS OF PAYMENT**

**701-5.0** These prices shall fully compensate the Contractor for furnishing all materials and for all preparation, excavation, backfill, and installation of these materials; and for all labor, equipment, tools, and incidentals necessary to complete the item.

**701-5.1** Payment will be made at the contract unit price per linear foot for the 36-inch dual pipe culvert, 30-inch RCP, 24-inch RCP, and 18-inch RCP.

| TECHNICAL SPECIFICATIONS           | DENVER INTERNATIONAL AIRPORT               |
|------------------------------------|--|
| DIVISION 2 – DRAINAGE              | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| D-701                              | CONTRACT NO: 202476290                     |
| PIPE FOR STORM DRAINS AND CULVERTS |  |

Payment will be made under:

| Item D-701a | Dual 36-Inch Culvert Extension, Class III RCP (Complete In Place) - per linear foot |
|-------------|---|
| Item D-701b | 30-Inch, Class III RCP (Complete In Place) - per linear foot                        |
| Item D-701c | 24-Inch, Class III RCP (Complete In Place) - per linear foot                        |
| Item D-701d | 18-Inch, Class III RCP (Complete In Place) - 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.

American Association of State Highway and Transportation Officials (AASHTO)

| ISSUED FOR CONSTRUCTION   | RS&H  | REVISION NO 00        |
|---------------------------|---|-----------------------|
| ASTM A849                 | Standard Specification for Post-Applied Coatings, P<br>for Corrugated Steel Sewer and Drainage Pipe         | avings, and Linings   |
| ASTM A762                 | Standard Specification for Corrugated Steel Pipe, Po<br>Sewers and Drains                                   | olymer Precoated for  |
| ASTM A761                 | Standard Specification for Corrugated Steel Structur<br>Coated, for Field-Bolted Pipe, Pipe-Arches, and Arc | <i>,</i>              |
| ASTM A760                 | Standard Specification for Corrugated Steel Pipe, M<br>Sewers and Drains                                    | etallic Coated for    |
| ASTM International (ASTM) |   |                       |
| AASHTO MP20               | Standard Specification for Steel Reinforced Polyethy<br>Pipe, (12- to 36-in.) Diameter                      | ylene (PE) Ribbed     |
| AASHTO M304               | Standard Specification for Poly (Vinyl Chloride) (P<br>Drain Pipe and Fittings Based on Controlled Inside I | /                     |
| AASHTO M294               | Standard Specification for Corrugated Polyethylene Diameter   | Pipe, (12- to 60-in.) |
| AASHTO M252               | Standard Specification for Corrugated Polyethylene  | Drainage Pipe         |
| AASHTO M243               | Standard Specification for Field Applied Coating of<br>Structural Plate for Pipe, Pipe-Arches, and Arches   | Corrugated Metal      |
| AASHTO M219               | Standard Specification for Corrugated Aluminum Al<br>for Field-Bolted Pipe, Pipe-Arches, and Arches         | lloy Structural Plate |
| AASHTO M196               | Standard Specification for Corrugated Aluminum Pi<br>Drains   | pe for Sewers and     |
| AASHTO M190               | Standard Specification for Bituminous-Coated Corru<br>Pipe and Pipe Arches                                  | igated Metal Culvert  |
| AASHTO M167               | Standard Specification for Corrugated Steel Structur<br>Coated, for Field-Bolted Pipe, Pipe-Arches, and Arc | <i>,</i>              |

| TECHNICAL SPECIFICATIONS           | DENVER INTERNATIONAL AIRPORT               |
|------------------------------------|--|
| DIVISION 2 – DRAINAGE              | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| D-701                              | CONTRACT NO: 202476290                     |
| PIPE FOR STORM DRAINS AND CULVERTS |  |

| ASTM B745  | Standard Specification for Corrugated Aluminum Pipe for Sewers and Drains  |
|------------|--|
| ASTM C14   | Standard Specification for Nonreinforced Concrete Sewer, Storm Drain, and Culvert Pipe   |
| ASTM C76   | Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe  |
| ASTM C94   | Standard Specification for Ready Mixed Concrete  |
| 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<br>Rubber Gaskets  |
| ASTM C506  | Standard Specification for Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe   |
| ASTM C507  | Standard Specification for Reinforced Concrete Elliptical Culvert, Storm<br>Drain and Sewer Pipe                                     |
| ASTM C655  | Standard Specification for Reinforced Concrete D-Load Culvert, Storm Drain and Sewer Pipe  |
| ASTM C990  | Standard Specification for Joints for Concrete Pipe, Manholes, and<br>Precast Box Sections Using Preformed Flexible Joint Sealants   |
| ASTM C1433 | Standard Specification for Precast Reinforced Concrete Monolithic Box<br>Sections for Culverts, Storm Drains, and Sewers             |
| ASTM D1056 | Standard Specification for Flexible Cellular Materials Sponge or Expanded Rubber   |
| ASTM D3034 | Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC)<br>Sewer Pipe and Fittings   |
| ASTM D3212 | Standard Specification for Joints for Drain and Sewer Plastic Pipes Using<br>Flexible Elastomeric Seals                              |
| ASTM D3262 | Standard Specification for "Fiberglass" (Glass-Fiber Reinforced<br>Thermosetting Resin) Sewer Pipe                                   |
| ASTM D3282 | Standard Practice for Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes                          |
| ASTM D4161 | Standard Specification for "Fiberglass" (Glass-Fiber Reinforced<br>Thermosetting Resin) Pipe Joints Using Flexible Elastomeric Seals |
| ASTM D6690 | Standard Specification for Joint and Crack Sealants, Hot Applied, for<br>Concrete and Asphalt Pavements                              |
| ASTM F477  | Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe  |
| ASTM F667  | Standard Specification for 3 through 24 in. Corrugated Polyethylene Pipe and Fittings  |

| TECHNICAL SPECIFICATIONS  | DENVER INTERNATIONAL AIRPORT  |
|---------------------------|---|
| DIVISION 2 – DRAINAGE     | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2  |
| D-701                     | CONTRACT NO: 202476290  |
| PIPE FOR STORM DRAINS AND | CULVERTS  |
| ASTM F714                 | Standard Specification for Polyethylene (PE) Plastic Pipe (DR PR)<br>Based on Outside Diameter                                      |
| ASTM F794                 | Standard Specification for Poly (Vinyl Chloride) (PVC) Profile Gravity<br>Sewer Pipe & Fittings Based on Controlled Inside Diameter |
| ASTM F894                 | Standard Specification for Polyethylene (PE) Large Diameter Profile   |

|            | Wall Sewer and Drain Pipe   |
|------------|---|
| ASTM F949  | Standard Specification for Poly (Vinyl Chloride) (PVC) Corrugated<br>Sewer Pipe with a Smooth Interior and Fittings |
| ASTM F2435 | Standard Specification for Steel Reinforced Polyethylene (PE)<br>Corrugated Pipe                                    |

**ASTM F2562** Specification for Steel Reinforced Thermoplastic Ribbed Pipe and Fittings for Non-Pressure Drainage and Sewerage Standard Specification for 6 to 30 in. Polypropylene (PP) Corrugated **ASTM F2736** Single Wall Pipe and Double Wall Pipe Standard Specification for 30 to 60 in. Polypropylene (PP) Triple Wall **ASTM F2764** Pipe and Fittings for Non-Pressure Sanitary Sewer Applications **ASTM F2881** Standard Specification for 12 to 60 in. Polypropylene (PP) Dual Wall

Pipe and Fittings for Non-Pressure Storm Sewer Applications

National Fire Protection Association (NFPA)

**NFPA 415** Standard on Airport Terminal Buildings, Fueling Ramp Drainage, and Loading Walkways

# **END ITEM D-701**

TECHNICAL SPECIFICATIONS DIVISION 2 – DRAINAGE D-701 PIPE FOR STORM DRAINS AND CULVERTS

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## Item D-705 Pipe Underdrains for Airports

## DESCRIPTION

**705-1.1** This item shall consist of the construction of the weir structure drainage interface in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the plans.

#### MATERIALS

705-2.1 General. Materials shall meet the requirements shown on the plans and specified below.

**705-2.2 Pipe.** The pipe shall be of the type called for on the plans or in the proposal.

**705-2.3 Joint mortar.** Pipe joint mortar shall consist of one part by volume of Portland cement and two parts sand. The Portland cement shall conform to the requirements of ASTM C150, Type I. The sand shall conform to the requirements of ASTM C144.

705-2.4 Elastomeric seals. Elastomeric seals shall conform to the requirements of ASTM F477.

**705-2.5 Porous backfill.** Porous backfill shall be free of clay, humus, or other objectionable matter, and shall conform to the gradation in Table 1 when tested in accordance with ASTM C136.

| Size Design of a family (see a second second | Percentage by Weight Passing Sieves |
|--|-------------------------------------|
| Sieve Designation (square openings)          | Porous Material No. 2               |
| 1-1/2 inch                                   | 100                                 |
| 1 inch                                       | 90-100                              |
| 3/8 inch                                     | 25-60                               |
| No. 4  | 5-40                                |
| No. 8  | 0-20                                |
| No. 16                                       |                                     |
| No. 50                                       |                                     |
| No. 100                                      |                                     |

Table 1. Gradation of Porous Backfill

**705-2.6 Granular material.** Granular material used for backfilling shall conform to the requirements of ASTM D2321 for Class IA, IB, or II materials.

**705-2.7 Filter fabric.** The filter fabric shall conform to the requirements of AASHTO M288 Class 2 or equivalent.

| Fabric Property  | Test Method                       | Test Requirement |
|--|-----------------------------------|------------------|
| Grab Tensile Strength, lbs                                       | ASTM D4632                        | 125 min          |
| Grab Tensile Elongation %  | ASTM D4632                        | 50 min           |
| Burst Strength, psi  | ASTM D3785                        | 125 min          |
| Trapezoid Tear Strength, lbs                                     | ASTM D4533                        | 55 min           |
| Puncture Strength, lbs   | ASTM D4833                        | 40 min           |
| Abrasion, lbs  | ASTM D4886                        | 15 max loss      |
| Equivalent Opening Size  | ASTM D4751                        | 70-100           |
| Permittivity sec <sup>-1</sup>                                   | ASTM D4491                        | 0.80             |
| Accelerated Weathering (UV Stability)<br>(Strength Retained - %) | ASTM D4355<br>*(500 hrs exposure) | 70               |

# **Table 2. Fabric Properties**

705-2.8 Controlled low-strength material (CLSM). CLSM is not used.

## **CONSTRUCTION METHODS**

**705-3.1 Equipment.** All equipment required for the construction of pipe underdrains shall be on the project, in good working condition, and approved by the DEN PM before construction is permitted to start.

**705-3.2 Excavation.** The width of the pipe trench shall be sufficient to permit satisfactory jointing of the pipe and thorough tamping of the bedding material under and around the pipe, but shall not be less than the external diameter of the pipe plus 6 inches on each side of the pipe. The trench walls shall be approximately vertical.

Where rock, hardpan, or other unyielding material is encountered, it shall be removed below the foundation grade for a depth of at least 4 inches. The excavation below grade shall be backfilled with selected fine compressible material, such as silty clay or loam, and lightly compacted in layers not over 6 inches in uncompacted depth to form a uniform but yielding foundation.

Where a firm foundation is not encountered at the grade established, due to soft, spongy, or other unstable soil, the unstable soil shall be removed and replaced with approved granular material for the full trench width. The DEN PM shall determine the depth of removal necessary. The granular material shall be compacted to provide adequate support for the pipe.

Excavated material not required or acceptable for backfill shall be disposed of by the Contractor as directed by the DEN PM. The excavation shall not be carried below the required depth; if this occurs, the trench shall be backfilled at the Contractor's expense with material approved by the DEN PM and compacted to the density of the surrounding material.

The pipe bedding shall be constructed uniformly over the full length of the pipe barrel, as required on the plans. The maximum aggregate size shall be 1 inch when the bedding thickness is less than 6 inches, and 1-1/2 inch when the bedding thickness is greater than 6 inches. Bedding shall be loosely placed, uncompacted material under the middle third of the pipe prior to placement of the pipe.

The Contractor shall do trench bracing, sheathing, or shoring necessary to perform and protect the excavation as required for safety and conformance to federal, state and local laws. Unless otherwise provided, the bracing, sheathing, or shoring shall be removed by the Contractor after the backfill has reached at least 12 inches over the top of the pipe. The sheathing or shoring shall be pulled as the granular backfill is placed and compacted to avoid any unfilled spaces between the trench wall and the backfill material. The cost of bracing, sheathing, or shoring, and the removal of same, shall be included in the unit price bid per foot for the pipe.

#### 705-3.3 Laying and installing pipe.

**a.** Concrete pipe. The laying of the pipe in the finished trench shall be started at the lowest point and proceed upgrade. When bell and spigot pipe is used, the bells shall be laid upgrade. If tongue and groove pipe is used, the groove end shall be laid upgrade. Holes in perforated pipe shall be placed down, unless otherwise shown on the plans. The pipe shall be firmly and accurately set to line and grade so that the invert will be smooth and uniform. Pipe shall not be laid on frozen ground.

Pipe which is not true in alignment, or which shows any settlement after laying, shall be taken up and re-laid by the Contractor at no additional expense. Making adjustments in grade by exerting force on the barrel of the pipe with excavating equipment, by lifting and dropping the pipe, or by lifting the pipe and packing bedding material under it shall be prohibited. If the installed pipe section is not to grade, the pipe section shall be completely removed, the grade corrected, and the pipe rejoined."

**b.** Metal pipe. The metal pipe shall be laid with the separate sections joined firmly together with bands, with outside laps of circumferential joints pointing upgrade, and with longitudinal laps on the sides. Any metal in the pipe or bands that is not protected thoroughly by galvanizing shall be coated with a suitable asphaltum paint.

During installation, the asphalt-protected pipe shall be handled without damaging the asphalt coating. Any breaks in the bitumen or treatment of the pipe shall be refilled with the type and kind of bitumen used in coating the pipe originally.

**c. PVC, fiberglass, or polyethylene pipe.** PVC or polyethylene pipe shall be installed in accordance with the requirements of ASTM D2321. Perforations shall meet the requirements of AASHTO M252 or AASHTO M294 Class 2, unless otherwise indicated on the plans. The pipe shall be laid accurately to line and grade. Fiberglass per ASTM D3839 Standard Guide for Underground Installation of "Fiberglass" (Glass-Fiber Reinforced Thermosetting-Resin) Pipe.

**d.** All types of pipe. The upgrade end of pipelines, not terminating in a structure, shall be plugged or capped as approved by the DEN PM.

Unless otherwise shown on the plans, a 4-inch bed of granular backfill material shall be spread in the bottom of the trench throughout the entire length under all perforated pipe underdrains.

Pipe outlets for the underdrains shall be constructed when required or shown on the plans. The pipe shall be laid with tight-fitting joints. Porous backfill is not required around or over pipe outlets for underdrains. All connections to other drainage pipes or structures shall be made as required and in a satisfactory manner. If connections are not made to other pipes or structures, the outlets shall be protected and constructed as shown on the plans.

e. Filter fabric. The filter fabric shall be installed in accordance with the manufacturer's recommendations, or in accordance with the AASHTO M288 Appendix, unless otherwise shown on the plans.

**705-3.4 Mortar.** The mortar shall be of the desired consistency for caulking and filling the joints of the pipe and for making connections to other pipes or to structures. Mortar that is not used within 45 minutes after water has been added shall be discarded. Retempering of mortar shall not be permitted.

**705-3.5 Joints in concrete pipe.** When open or partly open joints are required or specified, they shall be constructed as indicated on the plans. The pipe shall be laid with the ends fitted together as designed. If bell and spigot pipe is used, mortar shall be placed along the inside bottom quarter of the bell to center the following section of pipe.

The open or partly open joints shall be surrounded with granular material meeting requirements of porous backfill No. 2 in Table 1 or as indicated on the plans. This backfill shall be placed so its thickness will be not less than 3 inches nor more than 6 inches, unless otherwise shown on the plans.

When the original material excavated from the trench is impervious, commercial concrete sand or granular material meeting requirements of porous backfill No. 1 shall surround porous backfill No. 2 (Table 1), as shown on the plans or as directed by the DEN PM.

When the original material excavated from the trench is pervious and suitable, it may be used as backfill in lieu of porous backfill No. 1, when indicated on the plans or as directed by the DEN PM.

#### 705-3.6 Embedment and Backfill

**a. Earth.** All trenches and excavations shall be backfilled soon after the pipes are installed, unless additional protection of the pipe is directed. The embedment material shall be select material from excavation or borrow and shall be approved by the DEN PM. The select material shall be placed on each side of the pipe out to a distance of the nominal pipe diameter and one foot over the top of the pipe and shall be readily compacted. It shall not contain stones 3 inches or larger in size, frozen lumps, chunks of highly plastic clay, or any other material that is objectionable to the DEN PM. The material shall be moistened or dried, as required to aid compaction. Placement of the embedment material shall not cause displacement of the pipe. Thorough compaction under the haunches and along the sides to the top of the pipe shall be obtained.

The embedment material shall be placed in loose layers not exceeding 6 inches in depth under and around the pipe. Backfill material over the pipe shall be placed in lifts not exceeding 8 inches. Successive layers shall be added and thoroughly compacted by hand and pneumatic tampers, approved by the DEN PM, until the trench is completely filled and brought to the planned elevation. Embedment and backfilling shall be done to avoid damaging top or side of the pipe.

In embankments and other unpaved areas, the backfill shall be compacted per Item P-152 to the density required for embankments in unpaved areas. Under paved areas, the subgrade and any backfill shall be compacted per Item P-152 to the density required for embankments for paved areas.

**b. Granular backfill.** When granular backfill is required, placement in the trench and about the pipe shall be as shown on the plans. The granular backfill shall not contain an excessive amount of foreign matter, nor shall soil from the sides of the trench or from the soil excavated from the trench be allowed to filter into the granular backfill. When required by the DEN PM, a template shall be used to properly place and separate the two sizes of backfill. The backfill shall be placed in loose layers not exceeding 6 inches in depth. The granular backfill shall be compacted by hand and pneumatic tampers to the requirements as given for embankment. Backfilling shall be done to avoid damaging top or side pressure on the pipe. The granular backfill shall extend to the elevation of the trench or as shown on the plans.

When perforated pipe is specified, granular backfill material shall be placed along the full length of the pipe. The position of the granular material shall be as shown on the plans. If the original material excavated from the trench is pervious and suitable, it shall be used in lieu of porous backfill No. 1.

If porous backfill is placed in paved or adjacent to paved areas before grading or subgrade operations is completed, the backfill material shall be placed immediately after laying the pipe. The depth of the granular backfill shall be not less than 12 inches, measured from the top of the underdrain. During subsequent construction operations, a minimum depth of 12 inches of backfill shall be maintained over the underdrains. When the underdrains are to be completed, any unsuitable material shall be removed exposing the porous backfill. Porous backfill containing objectionable material shall be removed and replaced with suitable material. The cost of removing and replacing any unsuitable material shall be at the Contractor's expense.

If a granular subbase blanket course is used which extends several feet beyond the edge of paving to the outside edge of the underdrain trench, the granular backfill material over the underdrains shall be placed in the trench up to an elevation of 2 inches above the bottom surface of the granular subbase blanket course. Immediately prior to the placing of the granular subbase blanket course, the Contractor shall blade this excess trench backfill from the top of the trench onto the adjacent subgrade where it can be incorporated into the granular subbase blanket course. Any unsuitable material that remains over the underdrain trench shall be removed and replaced. The subbase material shall be placed to provide clean contact between the subbase material and the underdrain granular backfill material for the full width of the underdrain trench.

c. Controlled low-strength material (CLSM). CLSM is not used.

705-3.7 Flexible Pipe Ring Deflection. Not used.

**705-3.8 Connections.** When the plans call for connections to existing or proposed pipe or structures, these connections shall be watertight and made to obtain a smooth uniform flow line throughout the drainage system.

**705-3.9 Cleaning and restoration of site.** After the backfill is completed, the Contractor shall dispose of all surplus material, soil, and rubbish from the site. Surplus soil may be deposited in embankments, shoulders, or as directed by the DEN PM. Except for paved areas of the airport, the Contractor shall restore all disturbed areas to their original condition.

# **METHOD OF MEASUREMENT**

**705-4.1** The quantity of porous backfill shall be the number of linear feet of porous backfill, complete in place and accepted; measured along the weir structure and shall be determined from the dimensions given on the plans by typical trench sections indicating the placement of porous backfill or dimensions directed by the DEN PM. All trenching, excavation, removal of excavated material, filter fabric, backfill and compaction shall be included in the footage of porous backfill being measured along the weir structure.

# **BASIS OF PAYMENT**

**705-5.1** Payment will be made at the contract unit price per linear foot, complete (including filter fabric) for porous backfill, weir structure interface.

These prices shall be full compensation for furnishing all materials and for all preparation, excavation, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

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| TECHNICAL SPECIFICATIONS      | DENVER INTERNATIONAL AIRPORT               |
|-------------------------------|--|
| DIVISION 2 – DRAINAGE         | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| D-705                         | CONTRACT NO: 202476290                     |
| PIPE UNDERDRAINS FOR AIRPORTS |  |

Payment will be made under:

Item D-705a

Porous Backfill, Weir Structure Interface

#### 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 A760                     | Standard Specification for Corrugated Steel Pipe, Metallic Coated for Sewers and Drains   |
|-------------------------------|---|
| ASTM A762                     | Standard Specification for Corrugated Steel Pipe, Polymer Precoated for Sewers and Drains   |
| ASTM C136                     | Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates   |
| ASTM C144                     | Standard Specification for Aggregate for Masonry Mortar   |
| ASTM C150                     | Standard Specification for Portland Cement  |
| ASTM C444                     | Standard Specification for Perforated Concrete Pipe   |
| ASTM C654                     | Standard Specification for Porous Concrete Pipe   |
| ASTM D2321                    | Standard Practice for Underground Installation of Thermoplastic Pipe for<br>Sewers and Other Gravity-Flow Applications                      |
| ASTM D3262                    | Standard Specification for "Fiberglass" (Glass-Fiber Reinforced<br>Thermosetting Resin) Sewer Pipe  |
| ASTM D4161                    | Standard Specification for "Fiberglass" (Glass-Fiber Reinforced<br>Thermosetting Resin) Pipe Joints Using Flexible Elastomeric Seals        |
| ASTM F477                     | Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe   |
| ASTM F758                     | Standard Specification for Smooth Wall Poly (Vinyl Chloride) (PVC)<br>Plastic Underdrain Systems for Highway, Airport, and Similar Drainage |
| ASTM F794                     | Standard Specification for Poly (Vinyl Chloride) (PVC) Profile Gravity<br>Sewer Pipe & Fittings Based on Controlled Inside Diameter         |
| ASTM F949                     | Standard Specification for Poly (Vinyl Chloride) (PVC) Corrugated<br>Sewer Pipe with a Smooth Interior and Fittings                         |
| ASTM F2562                    | Specification for Steel Reinforced Thermoplastic Ribbed Pipe and Fittings for Non-Pressure Drainage and Sewerage                            |
| American Association of State | Highway and Transportation Officials (AASHTO)   |
| AASHTO M190                   | Standard Specification for Bituminous - Coated Corrugated Metal<br>Culvert Pipe and Pipe Arches   |
| AASHTO M196                   | Standard Specification for Corrugated Aluminum Pipe for Sewers and Drains   |
|                               |   |

| TECHNICAL SPECIFICATIONS      | DENVER INTERNATIONAL AIRPORT               |
|-------------------------------|--|
| DIVISION 2 – DRAINAGE         | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| D-705                         | CONTRACT NO: 202476290                     |
| PIPE UNDERDRAINS FOR AIRPORTS |  |

| AASHTO M252 | Standard Specification for Corrugated Polyethylene Drainage Pipe   |
|-------------|--|
| AASHTO M288 | Standard Specification for Geotextile Specification for Highway Applications   |
| AASHTO M294 | Standard Specification for Corrugated Polyethylene Pipe, (12- to 60-in.) Diameter  |
| AASHTO M304 | Standard Specification for Poly (Vinyl Chloride) (PVC) Profile Wall<br>Drain Pipe and Fittings Based on Controlled Inside Diameter |
| AASHTO MP20 | Standard Specification for Steel-Reinforced Polyethylene (PE) Ribbed<br>Pipe, (12- to 36-in.) diameter                             |
| AASHTO      | Standard Specifications for Highway Bridges  |
|             |  |

# END OF ITEM D-705

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## ITEM D-710 ROCK RIPRAP

#### DESCRIPTION

710-1.1 This item shall consist of furnishing and placing of rock riprap as shown on the plans and called for in these specifications. Placing of riprap will include all bedding, fabric (if applicable), and stones as indicated on the plans or as directed by the DEN Project Manager.

#### MATERIALS

**710-2.1 STONE.** All stone for rock riprap shall be sound, durable, and free from seams, cracks, and other defects and shall be as nearly rectangular as practicable. The stone shall have a specific gravity of at least 2.5. Broken concrete pieces obtained from the project may be used providing they meet the requirements contained herein.

**a.** Classification and Gradation of Riprap:

(1) Type "M". Maximum size for Type "M" shall be 1 cubic foot with the maximum dimension 21 inches. Minimum dimension shall be 4 inches. The stone shall be well graded between 4 inches and 21 inches. Gradation shall meet the requirements of Table 1 below.

| Table 1               |   |                                       |                          |
|-----------------------|---|---------------------------------------|--------------------------|
| Riprap<br>Designation | % Smaller Than<br>Given Size By<br>Weight | Intermediate Rock<br>Dimension Inches | d <sub>50</sub> * inches |
| Туре М                | 70-100                                    | 21                                    | 12                       |
|                       | 50-70                                     | 18                                    |                          |
|                       | 35-50                                     | 12                                    |                          |
|                       | 2-10                                      | 4                                     |                          |

\*d50 = Mean particle size

The nominal thickness of the completed riprap section, regardless of the type specified, shall be 1.5 times the mean diameter of the rock specified in Table 1 of this specification.

**BEDDING MATERIAL.** Types M riprap shall use CDOT Class A bedding material, referenced in Table 3 below.

| <b>c</b> : <b>c</b> : | Mass Percent Passing square Mesh Sieves |         |         |  |
|-----------------------|---|---------|---------|--|
| Sieve Size            | Class A                                 | Class B | Class C |  |
| 75 mm (3")            | 100                                     | -       | -       |  |
| 37.5 mm (1 ½")        | -                                       | 100     | -       |  |
| 19.0 mm (3/4")        | 20-90                                   | -       | 100     |  |
| 4.75 mm (No. 4)       | 0-20                                    | 20-60   | 60-100  |  |
| 1.8 µm (No.16)        | -                                       | 10-30   | -       |  |
| 300 µm (No. 50)       | -                                       | 0-10    | 10-30   |  |
| 150 µm (No. 100)      | -                                       | -       | 0-10    |  |
| 75 μm (No. 200)       | 0-3                                     | 0-3     | 0-3     |  |

## Table 2. Gradation Specifications for Filter Material

**FILTER FABRIC.** The filter fabric material to be placed under the non-grouted rock riprap shall be a non-woven polypropylene fabric having the following properties:

| a. | Weight                    | 8 ounces/square yard (271 grams/square meter) |
|----|---------------------------|---|
| b. | Tensile strength, wet     | Warp direction – 200 pounds (90 kg)           |
| c. | Fill direction            | 275 pounds (125 kg)                           |
| d. | Mullen Burst (ASTM D 751) | 400 psi (3 MPa)                               |
| e. | Elongation-at-break       | 75 percent                                    |

**710-2.4 CEMENT GROUT.** Grout shall be composed of 560 pounds cement per cubic yard conforming to the requirements of ASTM C 150 Type I/II, 70 percent fine aggregate conforming to the requirements of ASTM C 33, and 30 percent No. 8 coarse aggregate conforming to the requirements of ASTM C 33, Class 4S.

The grout shall have an air content of 6-9% when tested in accordance with ASTM C 231, a slump of 5 -9 inches when tested in accordance with ASTM C 143, and a minimum 28-day compressive strength of 2000 psi when sampled in accordance with ASTM C 31 and tested in accordance with ASTM C 39.

**710-2.5 TESTING LABORATORY.** The laboratory used to develop the grout mix design shall meet the requirements of ASTM C 1077 including accreditation. Accreditation shall include all test procedures required to develop the mix design. A certification signed by the manager of the laboratory stating it meets these requirements shall be submitted to the DEN Project Manager. The certification shall contain as a minimum:

**a.** Qualifications of personnel; including the laboratory manager, supervising technician, and testing technicians involved in developing the mix design.

**b.** Evidence of accreditation by a nationally recognized laboratory accreditation organization for all test methods used in developing the mix design.

**710-2.6 SUBMITTALS.** Contractor shall submit certification that the product delivered to the project site will have values equal to or greater than those specified above.

- **a.** Stone Certification of Compliance detailing gradation and specific gravity.
- **b.** Bedding Material Certification of Compliance showing gradation.
- **c.** Filter Fabric Certification of Compliance.

**d.** Grout – The Contractor shall submit a mix design including all proposed materials to the DEN Project Manager for the Grout at least thirty (30) days prior to use. The mix design and materials will not be approved when the laboratory trial mix is older than two (2) years and the Certificates of Compliance for the materials are the results from tests performed more than one (1) year in the past.

## **CONSTRUCTION METHODS**

**THE SECAVATION.** The slopes shall be finished to a reasonably smooth and compact surface within 2 inches of the lines, surfaces, and elevations shown on the plans.

**710-3.2 ROCK RIPRAP.** The filter fabric shall be spread on the prepared subgrade to provide a continuous, smooth, surface. After placing bedding material, the stone shall be spread on the filter fabric so as to produce a compact, well graded mass of minimum voids. Spreading shall be done so as to cause as little disturbance to the filter fabric as possible. Some rearranging of individual pieces may be required, either by hand or equipment, to obtain a reasonably uniform surface.

**710-3.3 GROUTED RIPRAP.** When grouted riprap is specified, the stone shall be laid as set forth above for rock riprap, except that filter fabric is not required. The spaces between the stones shall then be filled with grout. Sufficient grout shall be used to completely fill all voids, except that the face surface of the stone shall be left exposed. After grouting is completed, the surface shall be cured for a period of at least three days.

**710-3.4 BATCH TICKETS.** A sample copy of the proposed batch ticket shall be submitted to the DEN Project Manager for approval. Two copies of the batch ticket shall also be provided to the DEN Project Manager or his representative for each batch of concrete prior to unloading at the site. Grout delivered without a batch ticket containing complete information as specified shall be rejected. The Contractor shall collect and complete the batch ticket at the placement site and deliver all batch tickets to the DEN Project Manager's representative on a daily basis. The DEN Project Manager shall have access to the batch tickets at any time during the placement. The following information shall be provided on each batch ticket:

- **a.** Supplier's name and date
- **b.** Truck number
- **c.** Project number and location
- **d.** Cubic yards batched

- e. Time batched
- **f.** Mix design number
- g. Type, brand, and amount of each admixture
- h. Type, brand, and amount of cement
- i. Weights of fine and coarse aggregate
- j. Moisture of fine and coarse aggregate
- **k.** Gallons of batch water (including ice)
- **I.** Water cement ration
- **m.** Amount of water that can be added to the load prior to placement

The Contractor shall add the following information to the batch ticket at the placement site:

**n.** Gallons of water added by truck operator plus quantity of concrete in each truck each time water is added.

- **o.** Number of revolutions of drum at mixing speed (for truck mixed concrete)
- **p.** Discharge time
- **q.** Location of batch in placement.

**710-3.5 MIXING CONDITIONS.** The grout shall be mixed only in quantities required for immediate use. Grout shall not be mixed while the air temperature is below 40°F without permission of the DEN Project Manager. If permission is granted for mixing under such conditions, aggregates or water, or both, shall be heated and the grout shall be placed at a temperature not less than 50°F nor more than 90°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/her expense.

If the slump or air content of the load is below the specified amount at the time of arrival, the load can be adjusted prior to placement at the approval of the Contractor's Superintendent or authorized agent. Additional mixing shall be required as specified in ASTM C 94. Once placement has begun, no further adjustment shall be made. When additional water is added to the load the design water cement ratio shall not be exceeded. The amount of water that can be added to the load shall also be included on the batch ticket. Retempering of grout by adding water or any other material shall not be permitted.

The delivery of grout to the job shall be in such a manner that batches of grout will be deposited at uninterrupted intervals after placement has begun.

**710-3.6 ACCEPTANCE SAMPLING AND TESTING.** Grout will be accepted on the basis of the compressive strength specified in paragraph 2.4. The grout shall be sampled at the point of placement in accordance with ASTM C 172. Concrete cylindrical test specimens shall be made in accordance with

ASTM C 31 and tested in accordance with ASTM C 39. Concrete strengths for acceptance shall be the average of at least two 6 by 12 in. or at least three 4 by 8 in. cylinders tested at 28 days. The grout shall be sampled every fifty cubic yards, or fraction thereof, per day. The contractor shall provide a suitable area or container at the project site for initial storage and curing (up to the first 48 hours after molding) of specimens cast for acceptance purposes. The container shall be capable of maintaining a temperature range of 60 to 80°F. The DEN Project Manager's Quality Assurance Laboratory will make the actual tests on the specimens at no expense to the Contractor.

#### METHOD OF MEASUREMENT

**710-4.1** Type "M" rock riprap grouted shall be measured by the square yard, to the dimensions of the riprap as shown on the plans or as directed by the DEN Project Manager. Excavation, bedding, geotextile fabric, and grout are included in the contract unit price for Type "M" riprap and no separate measurement of payment will be made for them.

#### **BASIS OF PAYMENT**

**710-5.1** The accepted quantity of Type "M" rock riprap grouted will be paid for at the contract unit price per square yard. The price shall be full compensation for furnishing and placing all material, including filter fabric, and for all labor, equipment, tools, and incidentals necessary to complete the work prescribed in this item.

Riprap, Type "M", Grouted - Per Square Yard

|            | <b>TESTING REQUIREMENTS</b>                                  |
|------------|--|
| ASTM C 31  | Making and Curing Test Specimens in the Field                |
| ASTM C 39  | Compressive Strength of Cylindrical Concrete Specimens       |
| ASTM C 138 | Unit Weight, Yield, and Air Content of Concrete              |
| ASTM C 143 | Slump of Hydraulic Cement Concrete                           |
| ASTM C 172 | Practice for Sampling Freshly Mixed Concrete.                |
| ASTM C 231 | Air Content of Freshly Mixed Concrete by the Pressure Method |
|            | MATERIAL REQUIREMENTS  |
| ASTM C 33  | Concrete Aggregates  |
| ASTM C 94  | Ready Mixed Concrete   |
| ASTM C 150 | Portland Cement  |

- ASTM C 260 Air Entraining Admixtures for Concrete
- ASTM D 751 Coated Fabric

END OF ITEM D-710

Item D-710a

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#### Item D-752 Concrete Culverts, Headwalls, and Miscellaneous Drainage Structures

## DESCRIPTION

**752-1.1** This item shall consist of reinforced concrete culverts, headwalls, wingwalls, aprons and miscellaneous drainage structures constructed 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 DEN PM.

#### MATERIALS

752-2.1 Concrete. Reinforced concrete shall meet the requirements of Item P-610.

752-2.2 Structural Steel. Structural steel shall meet the requirements of ASTM A36 (Grade 60).

**752-2.3 Anchor Bolts.** Anchor bolts shall be of the insert type spun grouted in place with an epoxy resin adhesive cartridge. Bolts shall be ASTM F593 stainless steel with ASTM F594 stainless steel nuts and ANSI B18.22.1, Type A plain stainless-steel washers. Bolts shall meet or exceed the following load capacities, in place: Tension 18,000 psi; shear 14,000 psi.

#### **CONSTRUCTION METHODS**

#### 752-3.1 Unclassified Excavation.

**a.** Trenches and foundation pits for structures or structure footings shall be excavated to the lines and grades and elevations shown on the plans. 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 approximate only; and the DEN PM may approve, in writing, changes in dimensions or elevations of footings necessary to secure 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 DEN PM. All seams or crevices shall be cleaned out and grouted. All loose and disintegrated rock and thin strata shall be removed. When 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 steel is placed.

**c.** The Contractor shall do all bracing, sheathing, or shoring necessary to perform 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 structures involved.

**d.** All bracing, sheathing, or shoring shall be removed by the Contractor after the completion of the structure. Removal shall not disturb or damage the finished concrete. The cost of removal shall be included in the unit price bid for the structures involved.

**e.** After each excavation is completed, the Contractor shall notify the DEN PM. No concrete or reinforcing steel shall be placed until the DEN PM has approved the depth of the excavation and the character of the foundation material.

## 752-3.2 Backfilling.

**a.** After a structure has been completed, backfilling with approved material shall be accomplished by applying the fill 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 DEN PM.

**b.** No backfilling shall be placed against any structure until approved by the DEN PM. For concrete, 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 or the placement methods.

**c.** Fill placed around concrete culverts shall be deposited on each side at the same time and to approximately the same elevation. All slopes bounding or within the areas to be backfilled shall be stepped or serrated to prevent wedge action against the structure.

**d.** Backfill will not be measured for direct payment. Performance of this work shall be considered as a subsidiary obligation of the Contractor, covered under the contract unit price for the structures involved.

752-3.3 Weep Holes. Weep holes shall be constructed as shown on the plans.

**752-3.4 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 embankment, shoulders, or as approved by the DEN PM. 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. Contractor shall clean culvert/channel prior to installation of culvert exclusion devices including clearing of soil, vegetation, and debris at the outfall will be needed to allow for proper installation of the device.

#### 752-3.5 Quality Assurance/Quality Control.

**a. Inspection.** Mandatory hold points are established for inspection by the Project Manager for all reinforcing steel, embedded items, and concrete placement for structures by Item P-610.

Excavation shall be inspected when completed and after forms and reinforcing is installed in accordance with Item P-610.

Final grading shall be inspected to assure smooth transition at and around drainage courses.

**b.** Testing. Refer to Item P-610 for concrete testing requirements and to Item P-152 for soils testing requirements.

#### c. Submittals.

(1) Reinforcing Steel Detail Drawings. All structure reinforcing steel shall be detailed and shop drawings provided in accordance with the requirements of Item P-610, including utility blockouts, expansion joints and construction joints.

- (2) Waterstop product data in conformance with plans.
- (3) Excavation and shoring drawings, if required.

#### METHOD OF MEASUREMENT

**752-4.1** Construction of concrete trickle channels shall be measured per linear foot, in-place, complete and accepted by the DEN Project Manager. Excavation and subgrade preparation required to meet lines and grades, including the unclassified excavation under the proposed channel shall be paid under Item P-152.

**752-4.2** Headwalls, wingwalls and aprons (including concrete, reinforcing steel, backfilling and earthwork) shall be measured by each, in-place, complete and accepted by the DEN Project Manager.

**752-4.3** 36-inch security grates and exclusion devices for the pipe culvert shall be measured by each, inplace, complete and accepted by the DEN Project Manager.

#### **BASIS OF PAYMENT**

**752-5.1** Payment for trickle channels shall be made at the contract unit price per linear foot, complete and in-place. This price shall be full compensation for furnishing all materials and for all preparation, dewatering, temporary storm water drainage diversion structures or piping, excavation, backfilling and placing of the materials; furnishing and installation of such special connections to pipes and other structures as may be required to complete the item shown on the plans; and for all labor, equipment, tools, and incidentals necessary to complete the item.

**752-5.2** Payment for headwalls, wingwalls and aprons shall be made at the contract unit price per each, complete and in-place. This price shall be full compensation for furnishing all materials and for all preparation, excavation, backfilling, earthwork 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.

**752-5.3** Payment for 36-inch security grates and exclusion devices shall be made at the contract unit price per each, complete and in-place. This price shall be full compensation for furnishing all materials, manufacturing, and for all preparation, 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-752a | Concrete Trickle Channel, Complete – per Linear Foot                           |
|-------------|--|
| Item D-752b | Headwall, Wingwalls & Apron for Dual 36-Inch Pipe Culvert, Complete – per Each |
| Item D-752c | 36-Inch Security Grate, Complete – per Each                                    |
| Item D-752d | 36-Inch Culvert Exclusion Device, Complete – per Each                          |

| TECHNICAL SPECIFICATIONS          | DENVER INTERNATIONAL AIRPORT               |
|-----------------------------------|--|
| DIVISION 2 – DRAINAGE             | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| D-752                             | CONTRACT NO: 202476290                     |
| CONCRETE CULVERTS, HEADWALLS, AND |  |
| MISCELLANEOUS DRAINAGE STRUCTURES |  |
|                                   |  |

| Item D-752e | Headwall, Wingwalls & Apron for Dual 24-Inch Pipe Culvert, Complete – per Each |
|-------------|--|
| Item D-752f | 18-Inch FES, Complete – per Each   |
| Item D-752g | Underdrain Headwall, Complete – per Each                                       |
| Item D-752h | Concrete Valley Pan, Complete – 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.

ASTM International (ASTM)

| ASTM D698        | Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lb/ft <sup>3</sup> (600 kN-m/m <sup>3</sup> )) |
|------------------|---|
| ASTM D1556       | Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method   |
| MATERIAL REQUIRI | EMENTS  |
| ANSI B18.22.1    | Washers: Helical Spring-Lock, Tooth Lock, and Plain Washers (Inch Series)   |
| ASTM A36         | Standard Specification for Carbon Structural Steel  |
| ASTM F593        | Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs   |
| ASTM F594        | Standard Specification for Stainless Steel Nuts   |
| AWS D1.1         | Structural Welding Code   |

#### END OF ITEM D-752

TECHNICAL SPECIFICATIONS DIVISION 2 – AIRFIELD STANDARDS F-162 CHAIN-LINK FENCE

#### **ITEM F-162 CHAIN-LINK FENCE**

#### DESCRIPTION

**162-1.1** This item shall consist of furnishing and erecting a chain-link fence in accordance with these specifications, the details shown on the plans, and in conformity with the lines and grades shown on the plans or established by the DEN PM.

#### MATERIALS

**162-2.1 Fabric.** The fabric shall be woven with a 9-gauge galvanized steel in a 2-inch mesh and shall meet the requirements of ASTM A392, Class 2.

**162-2.2 Barbed wire.** Barbed wire shall be 3-strand 12-1/2 gauge zinc-coated with 4-point barbs and shall conform to the requirements of ASTM A121, Class 3, Chain Link Fence Grade.

**162-2.3 Posts, rails, and braces.** Line posts, rails, and braces shall conform to the requirements of ASTM F1043 or ASTM F1083 as follows:

Galvanized tubular steel pipe shall conform to the requirements of Group IA, (Schedule 40) coatings conforming to Type A, or Group IC (High Strength Pipe), External coating Type B, and internal coating Type B or D.

Posts, rails, and braces, with the exception of galvanized steel conforming to ASTM F1043 or ASTM F1083, Group 1A, Type A, or aluminum alloy, shall demonstrate the ability to withstand testing in salt spray in accordance with ASTM B117 as follows:

- External: 1,000 hours with a maximum of 5% red rust.
- Internal: 650 hours with a maximum of 5% red rust.

The dimensions of the posts, rails, and braces shall be in accordance with Tables I through VI of Federal Specification RR-F-191/3.

**162-2.4 Gates.** Gate frames shall consist of galvanized steel pipe and shall conform to the specifications for the same material under paragraph 162-2.3. The fabric shall be of the same type material as used in the fence.

**162-2.5 Wire ties and tension wires.** Wire ties for use in conjunction with a given type of fabric shall be of the same material and coating weight identified with the fabric type. Tension wire shall be 7-gauge marcelled steel wire with the same coating as the fabric type and shall conform to ASTM A824.

All material shall conform to Federal Specification RR-F-191/4.

**162-2.6 Miscellaneous fittings and hardware.** Miscellaneous steel fittings and hardware for use with zinc-coated steel fabric shall be of commercial grade steel or better quality, wrought or cast as appropriate to the article, and sufficient in strength to provide a balanced design when used in conjunction with fabric posts, and wires of the quality specified herein. All steel fittings and hardware shall be protected with a zinc coating applied in conformance with ASTM A153. Barbed wire support arms shall withstand a load of 250 pounds applied vertically to the outermost end of the arm.

| TECHNICAL SPECIFICATIONS        |
|---------------------------------|
| DIVISION 2 – AIRFIELD STANDARDS |
| F-162                           |
| CHAINLINK FENCE                 |

162-2.7 Concrete. Concrete shall have a minimum 28-day compressive strength of 3000 psi (2670 kPa).

162-2.8 Marking. Each roll of fabric shall carry a tag showing the kind of base metal (steel, aluminum, or

aluminum alloy number), kind of coating, the gauge of the wire, the length of fencing in the roll, and the name of the manufacturer. Posts, wire, and other fittings shall be identified as to manufacturer, kind of base metal (steel, aluminum, or aluminum alloy number), and kind of coating.

#### **CONSTRUCTION METHODS**

**162-3.1 General.** The fence shall be constructed in accordance with the details on the plans and as specified here using new materials. All work shall be performed in a workmanlike manner satisfactory to the DEN PM. The Contractor shall layout the fence line based on the plans. The Contractor shall span the opening below the fence with barbed wire at all locations where it is not practical to conform the fence to the general contour of the ground surface because of natural or manmade features such as drainage ditches. The new fence shall be permanently tied to the terminals of existing fences as shown on the plans. The Contractor shall stake down the woven wire fence at several points between posts as shown on the plans.

The Contractor shall arrange the work so that construction of the new fence follows DEN Security procedures. Coordination shall be maintained with the DEN PM and DEN Security for the installation of the temporary fencing, removal of existing fence and installation of the final proposed fence.

**162-3.2 Clearing fence line.** Clearing shall consist of the removal of all stumps, brush, rocks, trees, or other obstructions that will interfere with proper construction of the fence. Stumps within the cleared area of the fence shall be grubbed or excavated. The bottom of the fence shall be placed a uniform distance above ground, as specified in the plans. When shown on the plans or as directed by the RPR, the existing fences which interfere with the new fence location shall be removed by the Contractor as a part of the construction work unless such removal is listed as a separate item in the bid schedule. All holes remaining after post and stump removal shall be refilled with suitable soil, gravel, or other suitable material and compacted with tampers.

The cost of removing and disposing of the material shall not constitute a pay item and shall be considered incidental to fence construction.

**162-3.3 Installing posts.** All posts shall be set in concrete at the required dimension and depth and at the spacing shown on the plans.

The concrete shall be thoroughly compacted around the posts by tamping or vibrating and shall have a smooth finish slightly higher than the ground and sloped to drain away from the posts. All posts shall be set plumb and to the required grade and alignment. No materials shall be installed on the posts, nor shall the posts be disturbed in any manner within seven (7) days after the individual post footing is completed.

Should rock be encountered at a depth less than the planned footing depth, a hole 2 inches (50 mm) larger than the greatest dimension of the posts shall be drilled to a depth of 12 inches (300 mm). After the posts are set, the remainder of the drilled hole shall be filled with grout, composed of one part Portland cement and two parts mortar sand. Any remaining space above the rock shall be filled with concrete in the manner described above.

In lieu of drilling, the rock may be excavated to the required footing depth. No extra compensation shall

TECHNICAL SPECIFICATIONS DIVISION 2 – AIRFIELD STANDARDS F-162 CHAIN-LINK FENCE

be made for rock excavation.

**162-3.4 Installing top rails.** The top rail shall be continuous and shall pass through the post tops. The coupling used to join the top rail lengths shall allow for expansion.

**162-3.5 Installing braces.** Horizontal brace rails, with diagonal truss rods and turnbuckles, shall be installed at all terminal posts.

**162-3.6 Installing fabric.** The wire fabric shall be firmly attached to the posts and braced as shown on the plans. All wire shall be stretched taut and shall be installed to the required elevations. The fence shall generally follow the contour of the ground, with the bottom of the fence fabric no less than one inch or more than 4 inches from the ground surface. Grading shall be performed where necessary to provide a neat appearance.

At locations of small natural swales or drainage ditches and where it is not practical to have the fence conform to the general contour of the ground surface, longer posts may be used and multiple strands of barbed wire stretched to span the opening below the fence. The vertical clearance between strands of barbed wire shall be 6 inches or less.

**162-3.7 Electrical grounds.** Electrical grounds shall be constructed where a power line passes over the fence. The ground shall be installed directly below the point of crossing. The ground shall be accomplished with a copper clad rod 8 feet long and a minimum of 5/8 inches in diameter driven vertically until the top is 6 inches below the ground surface. A No. 6 solid copper conductor shall be clamped to the rod and to the fence in such a manner that each element of the fence is grounded. Installation of ground rods shall not constitute a pay item and shall be considered incidental to fence construction. The Contractor shall comply with FAA-STD-019, Lightning and Surge Protection, Grounding, Bonding and Shielding Requirements for Facilities and Electronic Equipment, paragraph 4.2.3.8, Lightning Protection for Fences and Gates, when fencing is adjacent to FAA facilities.

**162-3.8 Cleaning up.** The Contractor shall remove from the vicinity of the completed work all tools, buildings, equipment, etc., used during construction. All disturbed areas shall be seeded per T-901.

#### METHOD OF MEASUREMENT

**162-4.1** Chain-link fence, temporary and permanent, will be measured for payment by the linear foot. Measurement will be along the top of the fence from center to center of end posts. Temporary fence removal will not be measured separately and will be considered incidental to the temporary fence items.

#### **BASIS OF PAYMENT**

162-5.1 Payment for chain-link fence will be made at the contract unit price per linear foot.

The price shall be full compensation for furnishing all materials, coordination with stakeholders, and for all preparation, erection, and installation of these materials, and for all labor equipment, tools, and incidentals necessary to complete the item.

The removal of temporary fencing shall be considered incidental to the temporary fence pay item.

Payment will be made under:

Item F-162a

Chain-Link Security Fence, Complete – per linear foot

TECHNICAL SPECIFICATIONS DIVISION 2 – AIRFIELD STANDARDS F-162 CHAIN-LINK FENCE

Item F-162b Temporary Chain-Link Security Fence, Complete – 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.

ASTM International (ASTM)

| ASTM A121  | Standard Specification for Metallic-Coated Carbon Steel Barbed Wire  |
|------------|--|
| ASTM A153  | Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware   |
| ASTM A392  | Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric   |
| ASTM A491  | Standard Specification for Aluminum-Coated Steel Chain-Link Fence<br>Fabric  |
| ASTM A824  | Standard Specification for Metallic-Coated Steel Marcelled Tension<br>Wire for Use with Chain Link Fence                       |
| ASTM B117  | Standard Practice for Operating Salt Spray (Fog) Apparatus   |
| ASTM F668  | Standard Specification for Polyvinyl Chloride (PVC), Polyolefin and other Organic Polymer Coated Steel Chain-Link Fence Fabric |
| ASTM F1043 | Standard Specification for Strength and Protective Coatings on Steel<br>Industrial Fence Framework                             |
| ASTM F1083 | Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures                       |
| ASTM F1183 | Standard Specification for Aluminum Alloy Chain Link Fence Fabric  |
| ASTM F1345 | Standard Specification for Zinc 5% Aluminum-Mischmetal Alloy Coated Steel Chain-Link Fence Fabric                              |
| ASTM G152  | Standard Practice for Operating Open Flame Carbon Arc Light<br>Apparatus for Exposure of Nonmetallic Materials                 |
| ASTM G153  | Standard Practice for Operating Enclosed Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials                      |
| ASTM G154  | Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp<br>Apparatus for Exposure of Nonmetallic Materials           |
| ASTM G155  | Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Nonmetallic Materials                                |
|            |  |

#### Federal Specifications (FED SPEC)

FED SPEC RR-F-191/3 Fencing, Wire and Post, Metal (Chain-Link Fence Posts, Top Rails and Braces)

FED SPEC RR-F-191/4 Fencing, Wire and Post, Metal (Chain-Link Fence Accessories)

| TECHNICAL SPECIFICATIONS        |
|---------------------------------|
| DIVISION 2 – AIRFIELD STANDARDS |
| F-162                           |
| CHAIN-LINK FENCE                |
|                                 |

#### FAA Standard

| FAA-STD-019 | Lightning and Surge Protection, Grounding, Bonding and Shielding |
|-------------|--|
|             | Requirements for Facilities and Electronic Equipment             |

#### FAA Orders

5300.38

AIP Handbook

#### END OF ITEM F-162

TECHNICAL SPECIFICATIONS DIVISION 2 – AIRFIELD STANDARDS F-162 CHAIN-LINK FENCE

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TECHNICAL SPECIFICATIONS DIVISION 2 – FENCING P-163 WILDLIFE DETERRENT FENCE SKIRT

#### ITEM F-163 WILDLIFE DETERRENT FENCE SKIRT

#### DESCRIPTION

**163-1.1** This item shall consist of furnishing and installing chain-link fence fabric underground along chain link fence in accordance with these specifications and the details shown on the drawings and in conformity with the lines and grades shown on the plans or established by the DEN PM.

#### MATERIALS

**163-2.1 Chain link fence fabric.** The fabric shall be woven with a 9-gauge galvanized steel wire in a 2-inch mesh and shall meet the requirements of ASTM A392, Class II. The fabric shall be 5 feet wide.

**163-2.2 Barbed wire.** Barbed wire shall be 2-strand 12-1/2 gauge zinc-coated wire with 4-point barbs and shall conform to the requirements of ASTM A121, Class 3.

**163-2.3 Wire ties and tension wires.** Wire fabric ties, wire ties, and tension wire for a given type of fabric shall be the same material as the fabric type. The tension wire shall be 7-gauge coiled spring wire coated similarly to the respective wire fabric being used.

Wire fabric ties shall be hog rings of galvanized steel wire not less than 9-gauge.

All material shall conform to Federal Specification RR-F-191/4.

**163-2.4 Miscellaneous fittings and hardware.** Miscellaneous steel fittings and hardware for use with zinccoated steel fabric shall be of commercial grade steel or better quality, wrought or cast as appropriate to the fitting or hardware, and sufficient in strength to provide a balanced design when used with fabric, posts, and wires of the specified quality. All steel fittings and hardware shall be protected with a zinc coating applied in conformance with ASTM A153.

163-2.5 Concrete pads at gates. Not Used.

**163-2.6 Marking.** Each roll of fabric shall carry a tag showing the kind of base metal, kind of coating, the gauge of the wire, the length of fencing in the roll, and the name of the manufacturer. Posts, wire, and other fittings shall be identified as to manufacturer, kind of base metal, and kind of coating.

**163-2.7 Weed control material.** A commercially available weed control material shall be applied at the manufacturer's recommended rate.

#### **CONSTRUCTION METHODS**

**163-3.1 General.** The fence shall be constructed in accordance with the details on the plans and as specified here using new materials. All work shall be performed in a workmanlike manner satisfactory to the RPR. The Contractor shall layout the fence line based on the plans. The work shall progress in this manner and at the close of the working day the newly constructed fence shall be tied to the existing fence.

**163-3.2 Clearing fence line.** All brush, stumps, logs, and other debris which would interfere with the construction of the fence shall be removed on either side of the fence centerline before starting fencing operations. The material removed and disposed of shall not constitute a pay item and shall be considered incidental to fence construction.

**163-3.3 Installing fabric.** Excavate ground to the depth required for proper installation of the fabric. Obtain RPR's approval of depth of excavation before placing the wire fabric. Place the fabric and lap splice it to existing fence fabric and tie with wire ties at 2-foot spacing. Cut wire fabric around fence post footing to

| TECHNICAL SPECIFICATIONS             | DENVER INTERNATIONAL AIRPORT               |
|--------------------------------------|--|
| DIVISION 2 – FENCING                 | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| P-163 WILDLIFE DETERRENT FENCE SKIRT | CONTRACT NO: 202476290                     |

allow proper placement. Backfill with native soil to original grade and compact. Gate concrete pads shall be installed at each gate or as shown on the plans.

**163-3.4 Weed control application.** Weed control material shall be applied over an area 5 feet (1.5 m) wide, measured from the fence centerline, and over the wildlife fence. Apply weed control material as recommended by the manufacturer's instructions and in compliance with state and local regulations.

**163-3.5 Electrical grounds.** Electrical grounds shall be constructed where a power line passes over the fenceand at 500 feet intervals. The ground shall be accomplished with a copper clad rod 8 feet long and a minimum of 5/8 inches in diameter driven vertically until the top is 6 inches below the ground surface. A No. 6 solid copper conductor shall be clamped to the rod and to the fence in such a manner that each element of the fence is grounded. Installation of ground rods shall not constitute a pay item and shall be considered incidental to fence construction. The Contractor shall comply with FAA-STD-019, Lightning and Surge Protection, Grounding, Bonding and Shielding Requirements for Facilities and Electronic Equipment, paragraph 4.2.3.8, Lightning Protection for Fences and Gates, when fencing is adjacent to FAA facilities.

**163-3.6 Cleaning up.** The Contractor shall remove from the vicinity of the completed work all tools, buildings, equipment, etc., used during construction. All disturbed areas shall be seeded per Item T-901.

#### METHOD OF MEASUREMENT

**163-4.1 Chain link fence fabric.** Chain-link fence skirt fabric shall be measured for payment by the linear foot to the nearest foot. Measurement shall be along the fence from center to center of end or corner posts, excluding the length occupied by gate openings.

163-4.2 Concrete pads at gates. Not Used.

**163-4.3 Borrow fill material.** Borrow material for fill will be furnished by the Contractor. This shall be considered incidental to the installation of the wildlife deterrent fence skirt.

**163-4.4 Weed control application.** Weed control application shall be considered incidental to the installation of the wildlife deterrent fence skirt.

#### **BASIS OF PAYMENT**

**163-5.1 Chain link fence fabric.** Payment for chain-link wildlife deterrent fence skirt fabric shall be made at the contract unit price per linear foot. This price shall be full compensation for furnishing materials, all labor (including preparation, excavation, backfill, fill, and installation), equipment, tools, and incidentals necessary to complete this item. Utility locates shall be included in this pay item.

163-5.2 Concrete pads at gates. Not Used.

**163-5.3 Borrow fill material.** Payment for the loading, transporting, and placing of borrow material shall be considered incidental to the installation of the wildlife deterrent fence skirt .

**163-5.4 Weed control application.** Payment for weed control application shall be considered incidental to the installation of the wildlife deterrent fence skirt.

Payment will be made under:

Item F-163a Wildlif

Wildlife Deterrent Fence Skirt, Complete - per linear foot

| TECHNICAL SPECIFICATIONS             |  |
|--------------------------------------|--|
| DIVISION 2 – FENCING                 |  |
| P-163 WILDLIFE DETERRENT FENCE SKIRT |  |

#### 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 A121  | Standard Specification for Metallic-Coated Carbon Steel Barbed Wire  |  |  |  |
|--|--|--|--|--|
| ASTM A153  | Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware   |  |  |  |
| ASTM A392  | Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric   |  |  |  |
| Federal Specifications (FED SPEC)  |  |  |  |  |
| FED SPEC RR-F-191/4 Fencing, Wire and Post, Metal (Chain-Link Fence Accessories) |  |  |  |  |
| FAA Standard   |  |  |  |  |
| FAA-STD-019  | Lightning and Surge Protection, Grounding, Bonding and Shielding<br>Requirements for Facilities and Electronic Equipment |  |  |  |
| FAA Orders   |  |  |  |  |
| 5300/38  | AIP Handbook   |  |  |  |

#### END OF ITEM F-163

TECHNICAL SPECIFICATIONS DIVISION 2 – FENCING P-163 WILDLIFE DETERRENT FENCE SKIRT

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#### 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 DEN PM 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 DEN PM 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.

In addition, seeding submittals must include the following:

- 1) Certification from the seed supplier showing the comprehensive list of species present in the mix.
- 2) The purity analysis results from an accredited seed testing lab for each species listed on the mix certification (these purity analyses must show that there are no Colorado noxious weeds present).
- 3) Documentation showing that crop and weed seed percentages, for the entire mix, are both less than or equal to 0.01%.

Seeds shall be applied as follows:

#### Seed Properties and Rate of Application

#### **Dry/Upland Grasses**

| Scientific Name     | Common Name        | Soil Conditions  | Lbs<br>PLS/acre* | % of<br>mix** |
|---------------------|--------------------|------------------|------------------|---------------|
| Pascopyrum smithii  | Western Wheatgrass | Universal Upland | 3.75             | 25.00         |
| Agropyron cristatum | Crested Wheatgrass | Universal Upland | 3.75             | 25.00         |

| Buchloe dactyloides | Buffalograss       | Universal Upland     | 3    | 20.00 |
|---------------------|--------------------|----------------------|------|-------|
| Elymus trachycaulus | Slender Wheatgrass | Non-Saline<br>Upland | 2.25 | 15.00 |
| Bouteloua gracilis  | Blue Grama         | Non-Saline<br>Upland | 1.5  | 10.00 |
| Sporobolus airoides | Alkali Sacaton     | Saline Upland        | 0.75 | 5.00  |
| TOTAL               |                    |                      | 15   | 100   |

\* PLS means Pure Live Seed; rates shown are for drill seeding, if broadcast, rates should be doubled.

\*\* Percent by seed number

\*\*\* Wetland mixes to be used only where wetland hydrology exists. Check with DEN Environmental Services.

† VNS = Variety Not Stated

Seeding shall be performed during the period between spring thaw and the freezing of the ground.

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 commercial fertilizer and shall be spread at the rate which is determined by the seeding contractor to allow for proper vegetative growth.

**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 DEN PM before being placed.

#### **CONSTRUCTION METHODS**

**901-3.1** Advance Preparation and Cleanup. After grading of areas has been completed and before applying fertilizer and ground limestone, 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

| TECHNICAL SPECIFICATIONS |
|--------------------------|
| DIVISION 2 – TURFING     |
| T-901                    |
| SEEDING                  |

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 and ground limestone, 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. 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.

**b.** Seeding. Grass seed shall be accomplished by drill seeding.

The seed drill will be equipped with three seed boxes including one for large smooth seed, one for fluffy seed (with picker wheels to prevent bridging), and one for small smooth seed. Furrow spacing may vary between 7 and 9 inches. Drill will have double disc furrow openers and functioning depth bands set to plant at ½ inch depth. Drill will have either packer wheels or drag chains. Grain drills are NOT acceptable. Seeder-cultipackers are also not acceptable.

#### 901-3.3 Wet Application Method. Not used.

**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 DEN PM. Surfaces gullied or otherwise damaged following seeding shall be repaired by regrading and reseeding as directed. The Contractor shall mow, water as directed, 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 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 DEN PM. A grass stand shall be considered adequate when bare spots are one square foot or less, randomly dispersed, and do not exceed 3% of the area seeded.

Alternatively, a two-year warranty period may be established after which re-vegetation requirements associated with construction projects as regulated by the National Pollutant Discharge Elimination System (NPDES) stormwater program and managed by the Colorado Department of Public Health and Environment (CDPHE) would be implemented. Permanent stabilization is defined by CDPHE and in this specification as return of ground cover (cover of live plants including weeds plus that of litter (detached dead plant parts) and standing dead plant material) equal to or greater than 70% of that present previous to disturbance. Inasmuch as total ground cover in this area prior to disturbance is often in the range of 70 to 80%, meaning that 70% of these levels is about 50 to 55%, a single standard of 50% total ground cover will be used. That is, to be regarded as stabilized, project areas must demonstrate 50% ground cover (by visual estimate). In other words no more than 50% of the surface may be exposed soil. Areas with bare soil in excess of 50% may be no larger than 1,000 sq.ft. as determined by the DEN Project Manager.

| TECHNICAL SPECIFICATIONS | DENVER INTERNATIONAL AIRPORT               |
|--------------------------|--|
| DIVISION 2 – TURFING     | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| T-901                    | CONTRACT NO: 202476290                     |
| SEEDING                  |  |

If, at the time when the contract has been otherwise completed it is not possible to make a determination of the adequacy of the re-vegetation, payment for the unaccepted portions of the areas will be withheld until such time as these requirements have been met.

#### METHOD OF MEASUREMENT

**901-4.1** The quantity of seeding to be paid for shall be the number of unit acres 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-901a 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.

ASTM International (ASTM)

ASTM C602 Standard Specification for Agricultural Liming Materials

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

#### ATTACHMENT 901-A

#### NOXIOUS WEED SPECIES AS PER COLORADO WEED ACT

#### LIST A NOXIOUS WEED SPECIES

African rue (Peganum harmala)

Bohemian knotweed (Polygonum x bohemicum)

Camelthorn (Alhagi pseudalhagi)

Common crupina (Crupina vulgaris)

Cypress spurge (Euphorbia cyparissias)

Dyer's woad (Isatis tinctoria)

Elongated mustard (Brassica elongata)

Giant knotweed (Polygonum sachalinense)

Giant reed (Arundo donax)

Giant salvinia (Salvinia molesta)

Hydrilla (Hydrilla verticillata)

Japanese knotweed (Polygonum cuspidatum)

Meadow knapweed (Centaurea pratensis)

Mediterranean sage (Salvia aethiopis)

Medusahead (Taeniatherum caput-medusae)

Myrtle spurge (Euphorbia myrsinites)

Orange hawkweed (Hieracium aurantiacum)

Parrotfeather (Myriophyllum aquaticum)

Purple loosestrife (Lythrum salicaria)

Rush skeletonweed (Chondrilla juncea)

Squarrose knapweed (Centaurea virgata)

Tansy ragwort (Senecio jacobaea)

Yellow starthistle (Centaurea solstitialis)

#### LIST B NOXIOUS WEED SPECIES

Absinth wormwood (Artemisia absinthium) Black henbane (Hyoscyamus niger) Bouncingbet (Saponaria officinalis) Bull thistle (Cirsium vulgare) Canada thistle (Cirsium arvense) Chinese clematis (Clematis orientalis) Common tansy (Tanacetum vulgare) Common teasel (Dipsacus fullonum) Corn chamomile (Anthemis arvensis) Cutleaf teasel (Dipsacus laciniatus) Dalmatian toadflax, broad-leaved (Linaria dalmatica) Dalmatian toadflax, narrow-leaved (Linaria genistifolia) Dame's rocket (Hesperis matronalis) Diffuse knapweed (Centaurea diffusa) Eurasian watermilfoil (Myriophyllum spicatum) Hoary cress (Cardaria draba) Houndstongue (Cynoglossum officinale) Jointed goatgrass (Aegilops cylindrica) Leafy spurge (Euphorbia esula) Mayweed chamomile (Anthemis cotula) Moth mullein (Verbascum blattaria) Musk thistle (Carduus nutans) Oxeye daisy (Chrysanthemum leucanthemum)

Perennial pepperweed (Lepidium latifolium)

| Plumeless thistle (Carduus acanthoides)  |
|--|
| Russian knapweed (Acroptilon repens)   |
| Russian-olive (Elaeagnus angustifolia)   |
| Salt cedar (Tamarix chinensis, T.parviflora, and T. ramosissima)                   |
| Scentless chamomile (Matricaria perforata)   |
| Scotch thistle (Onopordum acanthium & Onopordum tauricum)                          |
| Spotted knapweed (Centaurea maculosa)  |
| Spotted x diffuse knapweed hybrid (Centaurea x psammogena = C. stoebe x C.diffusa) |
| Sulfur cinquefoil (Potentilla recta)   |
| Wild caraway (Carum carvi)   |
| Yellow nutsedge (Cyperus esculentus)   |
| Yellow toadflax (Linaria vulgaris)   |
| Yellow x Dalmatian toadflax hybrid (Linaria vulgaris x L. dalmatica)               |
| LIST C NOXIOUS WEED SPECIES  |
| Bulbous bluegrass (Poa bulbosa)  |
| Chicory (Cichorium intybus)  |
| Common burdock (Arctium minus)   |
| Common mullein (Verbascum thapsus)   |
| Common St. Johnswort (Hypericum perforatum)  |
| Downy brome (Bromus tectorum)  |
| Field bindweed (Convolvulus arvensis)  |
| Halogeton (Halogeton glomeratus)   |
| Thatogeton (Thatogeton gronnelatus)  |
| Johnsongrass (Sorghum halepense)   |
|  |
| Johnsongrass (Sorghum halepense)   |

Puncturevine (Tribulus terrestris)

Quackgrass (Elymus repens)

Redstem filaree (Erodium cicutarium)

Velvetleaf (Abutilon theophrasti)

Wild proso millet (Panicum miliaceum)

#### END OF ITEM T-901

TECHNICAL SPECIFICATIONS DIVISION 2 – TURFING T-905 TOPSOIL

#### Item T-905 Topsoil

#### DESCRIPTION

**905-1.1** This item shall consist of preparing the ground surface for topsoil application, removing topsoil from designated stockpiles or areas to be stripped on the site or from approved sources off the site, and placing and spreading the topsoil on prepared areas in accordance with this specification at the locations shown on the plans or as directed by the DEN PM.

#### MATERIALS

**905-2.1 Topsoil.** Topsoil shall be the surface layer of soil with no admixture of refuse or any material toxic to plant growth, and it shall be reasonably free from subsoil and stumps, roots, brush, stones (2 inches or more in diameter), and clay lumps or similar objects. Brush and other vegetation that will not be incorporated with the soil during handling operations shall be cut and removed. Ordinary sod and herbaceous growth such as grass and weeds are not to be removed, but shall be thoroughly broken up and intermixed with the soil during handling operations. Heavy sod or other cover, which cannot be incorporated into the topsoil by discing or other means, shall be removed. The topsoil or soil mixture, unless otherwise specified or approved, shall have a pH range of approximately 7.6 pH to 8.0 pH, when tested in accordance with the methods of testing of the Association of Official Agricultural Chemists in effect on the date of invitation of bids. The organic content shall be not less than 1% nor more than 10% as determined by the wet-combustion method (chromic acid reduction). Soil textures (USDA) suitable for revegetation include Sandy Loam, Silt Loam, Clay Loam, Sandy Clay Loam, Silty Clay Loam, and Loamy Sand.

| Parameter                    | Acceptable  | Unacceptable                                |
|------------------------------|---|---|
| Texture                      | Sandy Loam, Loam, Silt<br>Loam, Clay Loam, Sandy<br>Clay Loam, Silty Clay Loam,<br>Loamy Sand | Silty Clay, Clay, Sandy<br>Clay, Sand, Silt |
| Soil Reaction                | pH 5.0 to 8.0   | < 5.0 or > 8.0                              |
| Salinity (mmhos/cm)          | < or = 4.0  | > 4.0                                       |
| Organic Matter (%)           | > or = 1.0  | < 1.0                                       |
| Coarse Fragment Content (%)* | < or = 20   | > 20  |

When topsoil is imported to the site, it shall meet the following criteria:

\*Percent by weight of particles > 2 mm diameter (ie. gravels; cobbles and boulders excluded by provisions of 901-3.2)

| TECHNICAL SPECIFICATIONS | DENVER INTERNATIONAL AIRPORT               |
|--------------------------|--|
| DIVISION 2 – TURFING     | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| T-905                    | CONTRACT NO: 202476290                     |
| TOPSOIL                  |  |

Natural topsoil may be amended by the Contractor with approved materials and methods to meet the above specifications.

**905-2.2 Inspection and tests.** Within 10 days following acceptance of the bid, the DEN PM shall be notified of the source of topsoil to be furnished by the Contractor. The topsoil shall be inspected to determine if the selected soil meets the requirements specified and to determine the depth to which stripping will be permitted. At this time, the Contractor may be required to take representative soil samples from several locations within the area under consideration and to the proposed stripping depths, for testing purposes as specified in paragraph 905-2.1.

#### **CONSTRUCTION METHODS**

**905-3.1 General.** Areas to be topsoiled shall be shown on the plans. If topsoil is available on the site, the location of the stockpiles or areas to be stripped of topsoil and the stripping depths shall be shown on the plans.

Suitable equipment necessary for proper preparation and treatment of the ground surface, stripping of topsoil, and for the handling and placing of all required materials shall be on hand, in good condition, and approved by the DEN PM before the various operations are started.

**905-3.2 Preparing the ground surface.** Immediately prior to dumping and spreading the topsoil on any area, the surface shall be loosened by discs or spike-tooth harrows, or by other means approved by the DEN PM, to a minimum depth of 2 inches to facilitate bonding of the topsoil to the covered subgrade soil. The surface of the area to be topsoiled shall be cleared of all stones larger than 2 inches in any diameter and all litter or other material which may be detrimental to proper bonding, the rise of capillary moisture, or the proper growth of the desired planting. Limited areas, as shown on the plans, which are too compact to respond to these operations shall receive special scarification.

Grades on the area to be topsoiled, which have been established by others as shown on the plans, shall be maintained in a true and even condition. Where grades have not been established, the areas shall be smooth-graded and the surface left at the prescribed grades in an even and compacted condition to prevent the formation of low places or pockets where water will stand.

**905-3.3 Obtaining topsoil.** Prior to the stripping of topsoil from designated areas, any vegetation, briars, stumps and large roots, rubbish or stones found on such areas, which may interfere with subsequent operations, shall be removed using methods approved by the DEN PM. Heavy sod or other cover, which cannot be incorporated into the topsoil by discing or other means shall be removed.

When suitable topsoil is available on the site, the Contractor shall remove this material from the designated areas and to the depth as directed by the DEN PM. The topsoil shall be spread on areas already tilled and smooth-graded, or stockpiled in areas approved by the DEN PM. Any topsoil stockpiled by the Contractor shall be rehandled and placed without additional compensation. Any topsoil that has been stockpiled on the site by others, and is required for topsoil purposes, shall be removed and placed by the Contractor. The sites of all stockpiles and areas adjacent thereto which have been disturbed by the Contractor shall be graded if required and put into a condition acceptable for seeding.

When suitable topsoil is secured off the airport site, the Contractor shall locate and obtain the supply, subject to the approval of the DEN PM. The Contractor shall notify the DEN PM sufficiently in advance of operations in order that necessary measurements and tests can be made. The Contractor shall remove the topsoil from approved areas and to the depth as directed. The topsoil shall be hauled to the site of the work and placed for spreading, or spread as required. Any topsoil hauled to the site of the work and stockpiled shall be rehandled and placed without additional compensation.

| TECHNICAL SPECIFICATIONS | DENVER INTERNATIONAL AIRPORT                |
|--------------------------|---|
| DIVISION 2 – TURFING     | RUNWAY 17I -35R WILDLIFF MITIGATION-PHASE 2 |
|                          |   |
| T-905                    | CONTRACT NO: 202476290                      |
| TOPSOIL                  |   |

**905-3.4 Placing topsoil.** The topsoil shall be evenly spread on the prepared areas that have been left roughened to prevent topsoil layer slippage. Topsoil shall be to an average depth of six (6) inches, where the subsoil is suitable according to the following.

Subsoil suitability citeria are as follows:

| Parameter           | Acceptable Unacceptable |               |
|---------------------|-------------------------|---------------|
| Soil Reaction       | pH 5.0 to 8.7           | < 5.0 or >8.7 |
| Salinity (mmhos/cm) | < or = 7.0              | > 7.0         |

Where the subsoil does not meet the above suitability criteria, then the topsoil depth shall be 15 inches, or the Contractor shall apply soil amendments in order to bring brine soils within acceptance criteria.

Spreading shall not be done when the ground or topsoil is frozen, excessively wet, or otherwise in a condition detrimental to the work. Spreading shall be carried on so that turfing operations can proceed with a minimum of soil preparation or tilling.

After spreading, any large, stiff clods and hard lumps shall be broken with a pulverizer or by other effective means, and all stones or rocks (2 inches) or more in diameter), roots, litter, or any foreign matter shall be raked up and disposed of by the Contractor. after spreading is completed, the topsoil shall be satisfactorily compacted by rolling with a cultipacker or by other means approved by the DEN PM. The compacted topsoil surface shall conform to the required lines, grades, and cross-sections. Any topsoil or other dirt falling upon pavements as a result of hauling or handling of topsoil shall be promptly removed.

**905-3.5 Stockpiling.** Stockpiled side slopes shall not exceed 3:1. All stockpiles and adjacent areas that have been disturbed by the Contractor shall be graded, topsoiled if necessary, ripped and seeded in accordance with Sections T-901 and T-908. Whenever it is practical, topsoil shall be hauled directly from the salvage site to the placement site to avoid double handling.

A sufficient amount of topsoil for the entire project including shrinkage and waste shall be set aside before any quality topsoil material is used for purposes other than topsoiling.

**905-3.6 Verification of Topsoil Thickness.** The contractor shall be required to provide depth measurements for every 5,000 square yards of topsoil placed to minimum of 6 inch depth of topsoil. To test the depth of topsoil, the redressed areas will be divided into 10 acre plots. Within each plot, at least ten randomly selected locations will be sampled for topsoil depth before seedbed preparation. More than 90% of the samples must have a depth equal to or greater than the specified design depth. If this criterion is not met, the contractor will redress the plot. Topsoil shall be added as necessary to provide and maintain the minimum 6 inches of topsoil through the contract and maintenance period.

**905-3.7 Tolerances.** The surface of the finished topsoil surface shall be of such smoothness that it will not vary more than plus 0.10' to minus 0.10' from true grade as shown on the Contract Drawings. Any deviation in excess of this amount shall be corrected by loosening, adding and removing materials, and reshaping.

TECHNICAL SPECIFICATIONS DIVISION 2 – TURFING T-905 TOPSOIL

#### METHOD OF MEASUREMENT

**905-4.1** The quantity of topsoil removed, stockpiled and replaced shall be measured in its final place by field survey, per square yard. Measurements shall be taken after the Contractor has verified the 6-inches of topsoil layer thickness has been achieved and it is confirmed by the DEN Project Manager. See section 905-3.6 for depth measurement requirements.

#### **BASIS OF PAYMENT**

**905-5.1** Payment will be made at the contract unit price per square yard for topsoil removed, stockpiled and replaced. This price shall be full compensation for furnishing all materials and for all preparation, placing, and spreading of the materials, and for all labor, equipment, tools, and incidentals necessary to complete the item. It includes removal, exporting off site, hauling and stockpiling of the topsoil in an airport approved location, as well as hauling, placing and shaping, of the material in its final in-place condition. The price also includes disposal of any excess topsoil off Airport property.

Payment will be made under:

Item T-905a Topsoil (Removed, Stockpiled and Replaced) - 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 C117 Materials Finer than 75 µm (No. 200) Sieve in Mineral Aggregates by Washing

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-905

#### 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 DEN PM.

#### 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. No straw, regardless of quality, will be allowed.

Wood-fiber Mulch. Wood fiber mulch must be virgin long-fiber material. Wood fiber shall be absent of materials toxic to plant growth. Wood chips are not acceptable.

**a.** Matting.

1. Covering. Covering shall consist of blankets with close weave mesh and nettings with open weave mesh made of various materials as specified herein.

2. Blankets and nettings shall be biodegradable, non-toxic to vegetation or germination of seed, and shall not be toxic or injurious to humans.

(1) Excelsior. Excelsior soil retention covering shall be biodegradable as follows:

The blanket shall consist of a machine produced mat of curled wood excelsior of 80 percent, 6 inch or longer fiber length with a consistent thickness of fibers evenly distributed over the entire area of the blanket. The top side of the blanket shall be covered with a biodegradable netting, manufactured from a jute or other biodegradable material and stitched on 2 inch centers the entire width of the blanket.

| Dimensions:  | 48" by 180' or 96" by 90'     |
|--------------|-------------------------------|
| Roll Weight: | 0.9 to 1.1 pounds per sq. yd. |

| TECHNICAL SPECIFICATIONS | DENVER INTERNATIONAL AIRPORT               |
|--------------------------|--|
| DIVISION 2 – TURFING     | RUNWAY 17L-35R WILDLIFE MITIGATION-PHASE 2 |
| T-908                    | CONTRACT NO. 202476290                     |
| MULCHING                 |  |

**b.** Tackifier. Material for mulch tackifier shall consist of a free-flowing, organic, 100% all-natural starch polymer, applied in a slurry with water and wood fiber.

**908-2.2 Inspection.** The DEN PM 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 DEN PM and any materials brought on the site that do not meet these standards shall be rejected.

**908-2.3 Storage.** The Contractor shall store mulch with protection from weather or other conditions that would damage or impact the effectiveness of the product.

#### **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.

**908-3.2 Hydraulic Mulching.** Wood--fiber mulch and tackifier shall be added to water to form homogeneous slurry. The operator shall apply the slurry mixture uniformly over the designated seeded area via spraying.

Hydraulic mulching shall not be done in the presence of free surface water.

Mixing procedure for the hydraulic mulch and tackifier mixture shall be as follows:

- **a.** Fill tank with water approximately  $\frac{1}{4}$  full.
- **b.** Continue filling while agitating with engine at full rpm.
- c. Pour tackifier, at a moderate rate, directly into area of greatest turbulence.
- **d.** With the recommended amount of tackifier in solution, add wood-fiber mulch. Do not add fertilizer.

Apply the mulch and tackifier mixture at the following rate:

| Wood-Fiber Mulch | <u>Tackifier</u> | Water          |
|------------------|------------------|----------------|
| 2000 lbs./Acre   | 90 lbs./Acre     | 3000 gal./Acre |

After the hydraulic mulch is applied, foot traffic on the mulch surface should be minimized. Mulch once mixed with water and tackifier shall be used within 4 hours. Unused mulch mixture shall be promptly removed from the site.

**908-3.3 Matting.** All erosion control matting installed will be keyed into the ground surface along all exposed (non-overlapping) edges. Keying will consist placing the edge across a six-inch deep trench and backfilling over the mat to the original ground surface level.

**a. Excelsior.** The area to be covered shall be prepared, fertilized, and seeded, before the blanket is placed. When the blanket is unrolled, the netting shall be on top and the fibers shall be in contact with the soil. In ditches, blankets shall be unrolled in the direction of the flow of water. The end of the upstream blanket shall overlap the buried end of the downstream blanket a maximum of 8 inches and a minimum of 4 inches, forming a junction slot. This junction slot shall be stapled across at 8 inch intervals. Adjoining blankets (side by side) shall be offset 8 inches from center of ditch and overlapped a minimum of 4 inches. Six staples shall be used across the start of each roll, at 4 foot intervals, alternating the center row so that the staples form an "X" pattern. A common row of staples shall be used on adjoining blankets.

#### 908-3.4 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 DEN PM, 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 DEN PM, 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** Hydraulic mulching shall be measured in acres 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 acre 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-908a Hydraulic 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.

ASTM International (ASTM)

ASTM D977 Standard Specification for Emulsified Asphalt 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

DECEMBER 20, 2024 **EXHIBITR I: CONTINUED** 

## DENVER INTERNATIONAL AIRPORT

RUNWAY 17L-35R WILDLIFE MITIGATION – PHASE 2 ALL DRAINAGE

# CONSTRUCTION SAFETY AND PHASING PLAN (CSPP) ISSUED FOR CONSTRUCTION





# Runway 17L-35R Wildlife Mitigation – Phase 2 All Drainage

# Construction Safety and Phasing Plan (CSPP)

DECEMBER 20, 2024 Denver International Airport Contract No.: 202158115 RS&H No.: 1024-1914-010

> Prepared by RS&H, Inc. For City and County of Denver



# TABLE OF CONTENTS

| Sectior | n 1 Ov  | erview   | 3  |
|---------|---------|--|----|
| Sectior | n 2 Sc  | ope of Work  | 4  |
| 2.1     | Resp    | oonsibility  | 5  |
| 2.2     | Sub     | mittal   | 5  |
| 2.3     | DEN     | Project Manager's Review                               | 5  |
| Sectior | n 3 Pla | an Requirements  | 5  |
| 3.1     | Proj    | ect Coordination                                       | 5  |
| 3.1     | 1.1     | Design Meetings  | 6  |
| 3.1     | 1.2     | Pre-bid Conference                                     | 6  |
| 3.1     | 1.3     | Pre-Construction Conference                            | 6  |
| 3.′     | 1.4     | Contractor Progress Meetings                           | 7  |
| 3.1     | 1.5     | Scope of Schedule Changes                              |    |
| 3.1     | 1.6     | FAA ATO Coordination                                   | 8  |
| 3.2     | Phas    | sing   | 8  |
| 3.2     | 2.1     | Phase Elements   | 8  |
| 3.2     | 2.2     | Construction Safety Drawings                           | 10 |
| 3.3     | Area    | as of Operations Affected by the Construction Activity | 10 |
| 3.3     | 3.1     | Identification of Affected Areas                       | 11 |
| 3.3     | 3.2     | Mitigation of Effects                                  | 11 |
| 3.4     | Prot    | ection of Navigation Aids (NAVAIDs)                    |    |
| 3.5     |         | rity Requirements                                      |    |
| 3.      | 5.1     | Airport Security                                       |    |
| 3.9     | 5.2     | Airport ID Badge Requirements                          |    |
| 3.5     | 5.3     | Background Checks                                      |    |
| 3.5     | 5.4     | Vehicles in the Restricted Area                        | 15 |
| 3.6     | Con     | tractor Access   | 15 |
| 3.0     | 6.1     | Location of Stockpiled Construction Materials          |    |
| 3.0     | 6.2     | Vehicle and Pedestrian Operations                      |    |
| 3.7     | Wilc    | llife Management                                       |    |
| 3.8     | Fore    | ign Object Debris (FOD) Management                     | 22 |
| 3.9     | Haza    | ardous Materials (HAZMAT) Management                   | 23 |
| 3.10    | N       | otification of Construction Activities                 | 23 |
| 3.1     | 10.1    | Points of Contact/List of Responsible Representatives  | 24 |
| 3.1     | 10.2    | Notices to Airmen (NOTAM)                              |    |
| 3.1     | 10.3    | Emergency Notification Procedures                      |    |
| 3.1     | 10.4    | Coordination with ARFF Personnel                       | 25 |

| 3.10.5                               | Notification to the FAA  |    |
|--------------------------------------|--|----|
| 3.11 I                               | nspection Requirements   | 27 |
| 3.11.1<br>3.11.2                     | Daily (or more frequent) inspections<br>Final Inspections  | 27 |
| 3.11.3<br>3.11.4                     | Underground Utilities<br>Penalties   |    |
|                                      | Special Conditions<br>Runway and Taxiway Visual Aids   |    |
| 3.13.1<br>3.13.2<br>3.13.3<br>3.13.4 | General<br>Markings<br>Lighting and Visual NAVAIDs<br>Signs  |    |
|                                      | Aarking and Signs for Access Routes<br>Hazard Marking and Lighting   |    |
| 3.15.1<br>3.15.2                     | Purpose<br>Equipment   |    |
| 3.16 F                               | Protection of Runway and Taxiway Safety Areas  |    |
| 3.16.1<br>3.16.2<br>3.16.3           | Runway Safety Area (RSA)<br>Runway Object Free Area (ROFA)<br>Taxiway Safety Area (TSA)                        |    |
| 3.16.4<br>3.16.5<br>3.16.6           | Taxiway and Taxilane Object Free Area (TOFA)<br>Obstacle Free Zone (OFZ)<br>Runway Approach/Departure Surfaces |    |
|                                      | Other Limitations on Construction<br>Contractor's Safety Plan Compliance Documents (SPCD)                      |    |

## LIST OF TABLES

| Гаble 1-1: Runway Safety Area       | 30 |
|-------------------------------------|----|
| Гаble 1-2: Runway Object Free Area  | 31 |
| Гаble 1-3: Тахіway Safety Area      | 31 |
| Гаble 1-4: Тахіway Object Free Area | 32 |

## LIST OF APPENDICIES

Appendix A – Construction Safety and Phasing Plans Appendix B – Construction Daily Safety Inspection Checklist

# <u>section 1</u> OVERVIEW

Aviation safety is the primary consideration at airports, especially during construction. The airport operator's Construction Safety and Phasing Plan (CSPP) and the Contractor's Safety Plan Compliance Document (SPCD) are the primary tools to ensure safety compliance when coordinating construction activities with airport operations. These documents identify all aspects of the construction project that pose a potential safety hazard to airport operations and outline respective mitigation procedures for each hazard.

The CSPP sets forth benchmarks and requirements for the project to help ensure the highest levels of safety, security, and efficiency at the airport at the time of construction. Guideline requirements for the CSPP are developed from FAA Advisory Circular 150/5370-2G *Operational Safety on Airports during Construction*. Guideline requirements for the CSPP are developed from Advisory Circular No. 150/5370-2G and includes Rules and Regulations Governing the Denver Municipal Airport System – Traffic & 20 - Conduct of Persons Using the Denver Municipal Airport System, Project Specifications Division I Section 013520 – *Construction Safety- Airside*.

The CSPP is a standalone document, written to correspond with the safety and security requirements set forth in AC 150/5370-2G, the airport safety and security requirements, and local codes and requirements. The CSPP is to be used by all personnel involved in the project. The CSPP covers the actions of not only the construction personnel and equipment, but also the actions of inspection personnel, airport staff, aircraft, and aeronautical users.

This document has been developed to increase the performance and safety of construction activity, reduce construction costs, and minimize interruptions to airport operations. Strict adherence to the provisions of the CSPP by all personnel assigned to or visiting the construction site is mandatory for AIP funded construction projects.

The Contractor shall be required to submit a SPCD to the Airport describing how the Contractor will comply with the requirements set forth in this CSPP. The SPCD shall be drafted as required in AC 150/5370-2G. The SPCD must be submitted to the Airport for approval prior to issuance of the Notice to Proceed. The SPCD must also include a certification statement by the contractor stating that it understands the operational safety requirements detailed in this CSPP and SPCD. The contractor's certification statement will also assert that there will be no deviation from the approved construction practices contained within either of these documents.

In the event the Contractor's activities are found in non-compliance with the provisions of the CSPP or the SPCD, the DEN Project Manager will direct the Contractor, in writing, to immediately cease those operations in violation. In addition, a safety meeting will be conducted for the purpose of reviewing those provisions in the CSPP/SPCD which were violated. The Contractor will not be allowed to resume any

construction operations until conclusion of the safety meeting and all corrective actions required by the contractor have been implemented.

# <u>SECTION 2</u> SCOPE OF WORK

The City and County of Denver owns and operates Denver International Airport (DEN) and has selected RS&H, Inc. to provide design, bidding, and construction administration services for the Runway 17L-35R Wildlife Hazard Mitigation project to be performed under a Federal Aviation Administration (FAA) Airport Improvement Program (AIP) grant.

Denver International Airport (DEN) is undertaking a program to evaluate and improve the existing drainage on the east airfield, specifically near the Runway 17L-35R Complex. The work will be developed into projects that can be implemented in a phased manner over the coming years. The area has seen many wildlife strikes and has resulted in recommendation letters from both the USDA and FAA to mitigate the numerous bird strikes. These strikes are attributable to drainage areas that are overgrown with vegetation and/or hold water for a period of time, which has attracted wildlife near the runway and high-speed taxiways.

The current FAA-approved Wildlife Hazard Management Plan (WHMP) requires that water on DEN property be monitored closely to ensure that hazardous species are mitigated immediately. This can be directly related to eliminating water sources to effectively manage the airports attractiveness to wildlife. The WHMP also recognizes vegetation in waterways/drainage systems as an attractant for preferred habitat species that may be hazardous to aircraft.

This project is a continuation to the 2018 Wildlife Mitigation analysis performed by RS&H. Drainage Areas 1 and 2 were designed and constructed in 2019. Drainage Areas 3, 4 and 5 were designed in 2022 but not constructed due to a single bidder with high bid prices. The remaining drainage areas (6, 7, 8, 9A & 9B) are to be packaged with the existing design of Drainage Areas 3, 4 & 5.

The scope of this project is to finish the design and construction of all drainage areas on the East Airfield Wildlife Hazard Mitigation project. Work needed for this task includes a site evaluation, stakeholder coordination, data collection, progress meeting minutes, project schedule development, cost estimation, development of drawings/specifications, design analysis report, assistance with 7460 form and bidding services, and construction administration.

The DEN Airport Data Sheet 2018 lists the existing Runway Design Code (RDC) as a D-V-2,400. The 17L-35R Complex is designed to an ADG-V dimensional Criteria of FAA Advisory Circular 150/5300-13B.

Necessary construction locations, activities, and associated costs have been identified and their impact to airport operations has been assessed. The impact of work to Airport Operations Areas (AOA) is discussed

in detail below in Section 3, Plan Requirements and graphically depicted in the attached Safety and Phasing exhibits referenced in the previous paragraph. These exhibits will be made part of the drawing set issued to the contractor for bidding and construction.

## 2.1 **RESPONSIBILITY**

The General Conditions state that the Contractor shall always abide by the Construction Safety and Phasing Plan (CSPP), Safety Plan Compliance Document (SPCD) and DEN security plan as specified in the contract. The primary goal of this plan is to protect the flying public and the integrity of the airport/aircraft operation area.

The Contractor is responsible for the health and safety of its employees, agent's, subcontractors, and their employees as well as other persons on the work site, for the protection and preservation of the work and all the materials and equipment to be incorporated therein, and for the work site and the area surrounding the work site. The Contractor shall take all the necessary and reasonable precautions and actions to protect all such persons and property.

This document shall be interpreted, in its broadest sense, for the protection of people and property by the Contractor. No action shall relieve the Contractor of any of its obligations and duties hereunder.

## 2.2 SUBMITTAL

Refer to Technical Specifications Sections 013300 – *Submittal Procedures* for details. The Contractor's SPCD shall be submitted and approved under the general contract prior to commencing any work. If a Task Order is issued where the work is not covered by the approved safety plan, then a revision to the plan specific for the work in the task order shall be resubmitted for approval. Progress payments will not be approved until the safety plan has been accepted by the DEN Project Manager.

## 2.3 DEN PROJECT MANAGER'S REVIEW

The Contractor shall provide its Work Plan (operational plan) and SPCD to the DEN Project Manager for review at least 10 days before on-site construction begins. The Contractor's program must meet, as a minimum, all applicable federal, state, and local government requirements.

# <u>SECTION 3</u> PLAN REQUIREMENTS

## 3.1 PROJECT COORDINATION

DEN Airport, DEN Airport Contractors, or tenants conducting construction on their properties will use predesign, pre-bid, and pre-construction conferences and Pre-Work meeting of specific work items to introduce the subject of airport operational safety during construction. In addition, construction progress meetings, scope of schedule changes, and meetings with the FAA Air Traffic Organization (ATO) will be coordinated as required through the performance of the contract. Changes in the scope or duration of the project may necessitate revisions to the CSPP and review and approval by the airport operator and the FAA.

Early coordination by the DEN Project Manager(s) with FAA ATO is required to schedule airway facility shutdowns and restarts. While not part of this project, relocation or adjustments to NAVAIDs, or changes to final grades in critical areas, require an FAA flight inspection prior to restarting the facility. Flight inspections must be coordinated and scheduled well in advance of the intended facility restart. Flight inspections may require a reimbursable agreement between the airport operator and FAA ATO that will be coordinated by DEN.

### 3.1.1 Design Meetings

Bi-weekly design meetings were held during design that included representatives from DEN Operations, members of the DEN staff, and representatives from RS&H. The meetings were used to discuss various items relating to design parameters, airport safety, routing of aircraft and equipment, sequencing of construction operations, environmental considerations, and any other requirements pertinent to the project.

### 3.1.2 Pre-bid Conference

The Airport will conduct a pre-bid conference to help clarify and explain construction methods, procedures, and safety measures required by the contract.

A focus of the Pre-bid Conference will be to cover relevant information concerning the contractor's requirements for developing and submitting an SPCD for review and approval. This will include both general and specific elements required in the SPCD. In addition, information on how the contractor shall format the document to illustrate their plans for compliance with those provisions detailed out within this CSPP will also be provided.

Any changes or modifications recommended during the conference will be included in an addendum to the bid documents.

### 3.1.3 Pre-Construction Conference

A pre-construction conference will be held with the contractor, Airport, Airport Stakeholders and RS&H to discuss operational safety and security, quality control testing, quality acceptance testing, labor requirements, environmental factors, and other issues. This meeting, among all parties affected by the construction, should assist in a better understanding of potential problems and possible solutions for the course of the performance of this contract.

The pre-construction conference shall be conducted as soon as practicable after the contract has been awarded and before issuance of the notice to proceed.

The expected participants for this meeting shall include the following parties:

- 1. Design Engineer
- 2. Resident On-Site Inspectors

- 3. DEN personnel
- 4. Testing laboratory representative
- 5. Contractor and subcontractor(s)
- 6. Contractor's project superintendent and administrator
- 7. Airport users impacted by the proposed construction
- 8. Utility companies affected by the proposed construction
- 9. Federal, state, or local agencies affected by the proposed construction
- 10. Representative of FAA Airports regional or field office

The Contractor will prepare an agenda prior to the pre-construction conference. This will include but is not limited to:

- 1. The scope of the project and the sequence and timing of all operations.
- 2. Relationship between the Airport representative and the Contractor.
- 3. Relationship between the FAA and the sponsor.
- 4. Identification of the contractor's superintendent and a discussion of their authority and responsibilities.
- Designation of sponsor representative responsible for notifying the Flight Service Station serving the airport of the proposed start and completion dates of construction or of any circumstances requiring a NOTAM. Planned coordination (Airport Management), control and communications needed for those closures and crossings.
- 6. Scheduling of work and the need to perform certain items at various stages of the project, including operational safety problems that might arise because of the proposed work.
- 7. Notice to proceed date.
- Safety during construction, including the responsibility for marking and lighting of closed and hazardous areas. See AC 150/5370-2G Operational Safety on Airports During Construction and AC 150/5340-1M Standards for Airport Markings, current edition, for detailed information.
- 9. Security and Badging requirements.
- 10. The need for continuing vigilance for potential or existing hazards relative to any of the items associated with construction operations on an active or closed airfield surface.

# 3.1.4 Contractor Progress Meetings

Weekly construction meetings shall be held to discuss work progress and to address current or potential security and safety concerns. These meetings may be adjusted to a day-to-day basis as necessary for specific work items. Operational safety and security shall be a standing agenda item for discussion during these weekly/daily construction progress meetings.

# 3.1.5 Scope of Schedule Changes

Changes in the scope and/or duration of the project will necessitate revisions to the CSPP. The FAA ADO Airports Regional or District office shall be promptly notified of any proposed changes to this CSPP. Changes to this document require review and approval by the Airport and the FAA prior to implementation. In addition, coordinate proposed changes with all appropriate local or federal

government agencies (i.e., EPA, OSHA, TSA, state environmental agencies, etc.). Refer to Technical Specifications Sections 013300 – *Submittal Procedures* for details.

# 3.1.6 FAA ATO Coordination

No FAA ATO coordination is expected under this project. Generally, early coordination with FAA ATO is required to schedule airway facility shutdowns and restarts. Coordination with FAA ATO is required to facilitate runway and taxiway closures as well as communicating open aircraft routes during construction.

It will remain the contractor's responsibility to be aware and cognizant of all activities on the airfield and to follow those procedures referenced above for work required in, around, or near any airfield NAVAIDs and Visual aids.

# 3.2 PHASING

Construction phasing for this project has been coordinated with the local Air Traffic personnel and airport users. The sequenced construction phases established in this CSPP have been incorporated into the project design and are reflected in the contract drawings and specifications.

The project areas are represented graphically in exhibits located in Appendix A of this document.

The performance of work for the phases will not require reduction of aircraft access, re-routing of aircraft around the project work area, or closures of any airfield surfaces. Exhibits showing the overall phasing layout and the safety and security elements associated with the phases have been provided in Appendix A of this report. In addition, reference Section 3.3 Areas and Operations Affected by the Construction Activity of this document.

# 3.2.1 Phase Elements

The sequence of construction for this project has been phased to maximize the performance and safety of construction activity within the Air Operations Area for the duration of this contract. General elements of this sequencing and phasing are as follows:

- Contractor staging areas Reference Appendix A, for general safety and security notes as well as staging area locations. Construction staging areas and contractor employee parking areas are to remain outside of all Object Free and Safety Areas for all active airfield surfaces.
- Construction access and haul routes –Applicable control along contractor haul routes for both safety and security must always be maintained. Reference Section 3.6.2 Vehicle and Pedestrian Operations, Section 3.14 Marking and Signs for Access Routes, and Section 3.16 Protection of Runway and Taxiway Safety Areas of this document for additional information.
- Aircraft access routes No aircraft routing will be affected under this project. Aircraft routing around construction areas has been coordinated to maintain aircraft operations at an acceptable level of efficiency during the project.

- ARFF access routes Emergency ARFF access in and around the site will be maintained by the contractor, as required, for the duration of this project. Construction contractors must prominently mark open trenches and excavations within the construction site, with approval from Airport Operations and Engineering, and light them with red lights during hours of restricted visibility or darkness.
- Required hazard marking and lighting Barricades, signs, and/or safety flag details and usage requirements are provided in the attached exhibits, reference Appendix A. In addition, reference Section 3.14 Marking and Signs for Access Routes, Section 3.15 Hazard Marking and Lighting, and Section 3.16 Protection of Runway and Taxiway Safety Areas of this document for additional information.
- Lead times for required notifications The contractor is required to coordinate this with DEN Airport Engineering and Airfield Operations. Lead times for required notifications shall be established at the pre-construction meeting.

Phase specific elements addressed and taken into consideration during the development of the construction phasing for this project are as follows:

## 3.2.1.1 Phase 1 (Airside Construction) – 200 Calendar Days

- 1. This phase shall be considered concurrent to all other phases.
- 2. No airfield areas closed to aircraft operations under this project.
- 3. During Work Area 8 South construction, Taxiway P shall be reduced to ADG III aircraft or smaller South of Taxiway P4.
  - a. Work Area 7 will be inside the Runway Protection Zone (RPZ) for 108 calendar days. No stockpiles or overnight parked equipment shall be allowed. Contractor to provide adequate dust mitigation.
  - Work Area 8 North (Phase 3) shall be coordinated with the RW 17R-35L Construction Project. No restrictions on Taxiway P, north of Taxiway P4 are permitted until Taxiways EA and EC are operational.
- 4. Runways
  - a. Runway 16R-34L Open
  - b. Runway 16L-34R Open
  - c. Runway 17L-35R Open
  - d. Runway 17R-35L Open
  - e. Runway 7-25 Open
  - f. Runway 8-26 Open
- Impacts to NAVAIDs No impacts for work in this milestone. Contractor must retain and protect ALSF2 infrastructure when performing work within Runway 35R RPZ. Pavement Marking Changes- No airfield pavement markings will be modified under this project.

#### 3.2.1.2 Phase 2 (Landside Construction) – 110 Calendar Days

- 1. This phase shall be considered concurrent to all other phases.
- 2. No airfield areas closed to aircraft operations under this project.
- 3. Runways
  - a. Runway 16R-34L Open
  - b. Runway 16L-34R Open
  - c. Runway 17L-35R Open
  - d. Runway 17R-35L Open
  - e. Runway 7-25 Open
  - f. Runway 8-26 Open
- 4. Impacts to NAVAIDs No impacts for work in this milestone.
- 5. Pavement Marking Changes No airfield pavement markings will be modified under this project.

#### 3.2.1.3 Phase 3 (Work Area 8 North) – 57 Calendar Days

- 1. This phase shall be considered concurrent to all other phases.
- 2. No airfield areas closed to aircraft operations under this project.
- 3. During Work Area 8 North construction, Taxiway P shall be reduced to ADG III aircraft or smaller North of Taxiway P4.
  - a. Work Area 8 North (Phase 3) shall be coordinated with the RW 17R-35L Construction Project. No restrictions on Taxiway P, north of Taxiway P4 are permitted until Taxiways EA and EC are operational.
- 4. Runways
  - a. Runway 16R-34L Open
  - b. Runway 16L-34R Open
  - c. Runway 17L-35R Open
  - d. Runway 17R-35L Open
  - e. Runway 7-25 Open
  - f. Runway 8-26 Open
- 5. Impacts to NAVAIDs No impacts for work in this milestone.
- 6. Pavement Marking Changes- No airfield pavement markings will be modified under this project.

# 3.2.2 Construction Safety Drawings

Graphical exhibits specifically indicating operational safety procedures and methods in areas affected by construction activities associated with this project have been provided with this CSPP and incorporated into the project drawing set. Reference Appendix A Exhibits of this document.

# 3.3 AREAS OF OPERATIONS AFFECTED BY THE CONSTRUCTION ACTIVITY

No runways surfaces will be affected during this project. All airfield areas shall remain in use by aircraft to the maximum extent possible without compromising safety. The performance of this contract will require

the reduction of aircraft service of taxiway aircraft surfaces on a scheduled and phases basis. In addition, reference the previous section, Section 3.2 Phasing.

# 3.3.1 Identification of Affected Areas

See Section 3.2.2 Construction Safety Drawings above for graphical identification of areas affected by construction operations. Of concern is the following:

## **3.3.1.1** Closing, or partial closing, of runways, taxiways, and aprons.

Phase associated closures are identified in the previous section, Section 2 Phasing and graphically illustrated in the attached exhibits, reference Appendix A of this document.

## 3.3.1.2 Closing of Aircraft Rescue and Fire Fighting (ARFF) access routes.

Access into, through and/or around the project work area by ARFF vehicles shall not be affected during construction. Contractor must maintain ARFF access when performing work within Runway 35R RPZ.

## 3.3.1.3 Closing of Access Routes Used by Airport and Airline Support Vehicles

Construction activities are not expected to negatively impact airline support vehicle access to aircraft parked at various gates around the terminal complex.

#### 3.3.1.4 Interruption of Utilities

Interruption of airfield/non-airfield utilities is not anticipated.

## 3.3.1.5 Approach/Departure Surfaces Affected by Heights of Objects

Contractor equipment conflicts or staging area heights of objects are not anticipated to impact approach/departure surfaces for open runways. Work Area 7 will perform work in Runway 35R RPZ, equipment parking is not allowed. 7460-1 studies will be filed for all work locations.

## 3.3.1.6 Construction Areas

These areas include the project work area, storage/stockpile areas, staging areas, and contractor haul routes near or through active airfield surfaces. The project work areas, staging areas and stockpile locations are not within active airfield surfaces.

# 3.3.2 Mitigation of Effects

This CSPP has established specific requirements and operational procedures necessary to maintain the safety and efficiency of airport operations during the construction of this project.

All coordination pertaining to airport operations during construction will go through the DEN Project Manager and the Operations Manager. Any required NOTAM's to be issued will be sent through the DEN Project Manager and issued by the Airport Operations Manager.

#### 3.3.2.1 Temporary Changes to Runway and/or Taxiway Operations

The affected taxiways identified in Section 3.3.1 will have reduced aircraft service as shown in the exhibits provided in Appendix A. In addition, required NOTAM's shall be issued on the various temporary changes to aircraft access through the affected areas.

#### 3.3.2.2 Detours for ARFF and other Airport Vehicles

The project work site shall remain open to all ARFF vehicles in emergency situations. The contractor is required to maintain access in and around the project work area for all ARFF vehicles. Proper routing of

this traffic will be effectively communicated to all supervisory personnel involved in the construction project.

## 3.3.2.3 Maintenance of Essential Utilities

Special attention shall be given to preventing unscheduled interruption of utility services and facilities. Where required due to construction purposes, the FAA shall locate all their underground utilities. The contractor shall locate and/or arrange for the location of all the underground utilities. The contractor should account for lead times for all utility locate requests. When an underground cable or utility is damaged due to the Contractor's negligence the Contractor shall immediately repair the affected cable or utility at his/her own expense. Full coordination between airport staff, field inspectors, and construction personnel will be exercised to ensure that all airport power and control cables are fully protected prior to any excavation. Locations of cabling and other underground utilities will be marked prior to beginning excavation.

## 3.3.2.4 Temporary Changes to Air Traffic Control Procedures

No temporary changes to air traffic control procedures are anticipated under this project. Any changes to air traffic control procedures must be coordinated with airport ATO.

# 3.4 PROTECTION OF NAVIGATION AIDS (NAVAIDS)

Before commencing construction activity, parking vehicles, or storing construction equipment and materials near a NAVAID, coordination with the appropriate FAA ATO to evaluate the effects of construction activity and the required distances and direction from the NAVAID is required. Construction activities, materials/equipment storage, and vehicle parking near electronic NAVAIDs require special consideration since they may interfere with lines of site and signals essential to air navigation.

# 3.5 SECURITY REQUIREMENTS

# 3.5.1 Airport Security

Participant guidelines are outlined in Denver Municipal Airport System Rules and Regulations Part 20. A Contractor must be sponsored by an Air Carrier, Tenant or by the City and County of Denver. Once a Contractor Company has been sponsored, they must designate an Authorizing Agent. Each Contractor (or Subcontractor) requiring access to the Restricted Area, Sterile Area, or Secured Area shall become a "Participant" in the Airport Security Program and remain in good standing to retain Airport Security privileges.

The sponsorship establishes that a Contractor (including Subcontractors) has legitimate business at the Airport. All construction contractors must submit a Participant Sponsorship form signed by their sponsor. A company sponsoring a Participant shall immediately notify Airport Security when any sponsorship is terminated.

A Sub-contractor Company working under its own entity must be sponsored by a Contractor Company. The Sub-contract Company must designate its own Authorizing Agent(s). Each Participant shall designate an Authorizing Agent to ensure the Participant's compliance with the Airport Security Program and act as the point of contact between the Participant and Airport Security. The Authorizing Agent shall be designated in writing to Airport Security by the Participant.

The Authorizing Agent(s) is responsible for signing and verifying all information on the Denver International Airport Fingerprinting and Badge Applications. All submitted applications must be an original. It is the Authorizing Agent(s) responsibility to ensure that Airport Security maintains valid contact information. The Authorizing Agent must maintain a current and valid Airport Identification Badge.

The security status of the Airport is subject to change without notice. These security requirements are applicable to the current security status of the Airport. Should the security status of the Airport change at any time during the term of the Agreement, a written notice shall be issued to the Contractor detailing all applicable security modifications. The Contractor must take immediate steps to comply with those security modifications.

The Contractor shall return to the City, at Agreement completion or termination, or upon demand by the City, all access keys and Airport ID Badges issued to it by the City to Restricted Areas of the Airport. If the Contractor fails to return any such Airport ID Badge(s) or Airport Security Key(s) at the Agreement completion or termination or upon demand by the City, the Contractor shall be liable to the City for all the City's costs, including the City's labor costs for re-coring doors and any other work which is required to prevent compromise of the Airport security system. To collect such costs hereunder, the City may withhold funds in such amount from any amounts due and payable to the Contractor under the Agreement.

# 3.5.2 Airport ID Badge Requirements

All individuals employed at the Airport with Restricted Area access, or working in the Terminal, Concourses, or Parking and Ground Transportation facilities, must obtain an Airport Identification (ID) Badge. Airport ID Badges will be issued by Airport Security and if deemed necessary by Airport Security, may require a deposit. All such identification badges shall be and remain the property of the Airport. The Airport ID Badge must be surrendered on demand to Airport Operations and/or a Contract Security Guard. An individual employed by more than one company, or changing employers, must obtain an Airport ID Badge for each company. Badge Color indicates general areas of authorization in relationship with direct support of an individual's job function. Badge Color does not determine access. The respective classes of Airport ID Badges, indicated by badge color and associated driving privilege icon, describe driving privileges in direct correlation with their job function.

The individual must complete a Denver International Airport Fingerprinting and Badge Application, on a form prepared and currently approved by Airport Security. Two valid forms of identification must be presented with the application, one of which must be government issued photo identification. The second form of identification must verify proof of citizenship (i.e., birth certificate or legal residency with work authorization). All information regarding the individual's name, age, gender, and other vital statistics on both forms of identification must be consistent and verifiable.

A Denver International Airport Fingerprinting and Badge Application, Security Threat Assessment (STA) and Criminal History Record Check (CHRC) must be completed for everyone requesting an Airport Identification Badge. Denver International Airport Fingerprinting and Badge Application are available from the Airport Security Offices.

The individual must view a training film on Denver Municipal Airport System Rules and Regulations, as they pertain to overall security, and pass a corresponding test to assure understanding of the Rules and Regulations.

If the individual requests Driver Authorization, a valid driver's license must be presented, and the individual must view a training film on Denver Municipal Airport System Rules and Regulations, as they pertain to overall Movement of Vehicles in the Restricted Area and pass a corresponding test to assure understanding of the Rules and Regulations.

A construction orientation specific to the project must be conducted. A designated time for this session must be coordinated with Planning and Development and Airport Operations.

Every individual requesting an Airport ID Badge must complete a Criminal History Record Check (CHRC) and a Security Threat Assessment (STA) for unescorted access to the Restricted Area.

If an applicant has been convicted or found guilty by reason of insanity or has been arrested for any felony and/or any of the disqualifying crimes and is awaiting judicial proceedings he/she may be ineligible to obtain an Airport Identification badge. A list of the disqualifying crimes may be found in 49 C.F.R. 1542.209.

Allow adequate time for processing of the Security Threat Assessments (STA) and Criminal History Record Check (CHRC).

A lost or stolen badge must be immediately reported to Airport Security. For a replacement badge a new Denver International Airport Fingerprinting and Badge Application must be completed and signed by the Company(s) Authorizing Agent. A non-refundable fee must be paid for a replacement badge.

If for any reason the Airport Identification Badge becomes inoperable or damaged, the Airport Identification Badge holder shall return that badge to Airport Security, and a replacement badge will be issued. A replacement fee may be assessed should the damage be attributable to the negligence of the employee who was issued the badge.

When an employee is terminated, the Contractor Company shall immediately notify Airport Security. This notification must be followed by the return of the badge and written confirmation of this information. The Contractor Company must recover badges from individuals whose employment at the Airport has been terminated. The Contractor Company shall notify Airport Security in writing when a Subcontractor is no longer under their sponsorship. All Airport Identification Badges must be returned to Airport Security.

An employee possessing a valid Airport Identification Badge may escort other individuals into the Restricted Area under the conditions listed in the DEN Rules and Regulations Section 20.

If the project is extended, the City and County Airport Project Manager must submit a new Sponsorship Form with a new expiration date. This can be accomplished 30 calendar days prior to expiration of the Airport Identification Badge. An application revision must be completed for each employee still required on the project if the badges have expired.

# 3.5.3 Background Checks

Every individual requesting an Airport ID Badge must complete a Criminal History Record Check (CHRC) and a Security Threat Assessment (STA) for unescorted access to the Restricted Area. If an applicant has been convicted or found guilty by reason of insanity or has been arrested for any felony and/or any of the disqualifying crimes and is awaiting judicial proceedings he/she may be ineligible to obtain an Airport Identification badge. A list of the disqualifying crimes may be found in 49 C.F.R. 1542.209.

# 3.5.4 Vehicles in the Restricted Area

All Contractor Employees who are required to drive in the Secured Area/AOA to perform their job duties must comply with Denver Municipal Airport System Rules and Regulations; specifically, part 130, Part 70, Part 20, and Part 230. Contractors must have an established driver training program for employees as outlined in Part 130. New employees must complete a driver orientation with their organizations driving representative prior to testing and receiving the driving endorsement on their SIDA Airport ID Badge from Airport Security.

Contractors are required to permit all vehicles that will drive in Secured Area/AOA. A company Authorized Signatory must complete a Vehicle Permitting Form for each vehicle. Vehicle permitting is non-transferable. The Authorized Signatory must contact airport security if the company removes or adds vehicles, or any change is made to vehicle registration or license plates. Denver International Airport uses License Plate Readers (LPR) for entrance/exit onto the airfield through vehicle gates.

The Contractor is required to comply with all insurance requirements as stated in Part 230. The minimum Business Automobile Liability limit required for unescorted airside driving privileges is \$10,000,000, in combined single limit each occurrence for bodily injury and property damage. Certificate of insurance evidencing the applicable coverage must be provided at time of submitting the Vehicle Permitting Form.

# 3.6 CONTRACTOR ACCESS

This CSPP details those areas to which the contractor must have access, and how contractor personnel will access those project work areas.

The Contractor will separate the construction area from the active airfield areas by placing barricades with red flashing lights as shown on the plans. Barricades and delineators shall be installed at locations shown on the plans just prior to the approved construction phase start date. In addition, temporary signage

indicating "No Contractor Access" and delineators shall be installed at locations shown on the plans to stop Contractor employees from entering the runway object free areas.

No equipment or personnel may enter the runways or taxiways adjacent to the project without the proper clearance, flagging, and/or escort.

- 1. DEN will close or restrict the Runways and Taxiways when any work activity, equipment and/or personnel are going to be within the Runway and Taxiway Safety and Object Free Areas.
  - a. All lighting systems and signs in closed areas shall be de-energized. All lighting systems directing traffic to closed areas shall be de-energized.
  - b. All signs in closed areas shall be de-energized and securely covered by the Contractor.
  - c. All signs or portions of signs outside the closed area directing aircraft to closed areas shall be completely and securely covered. The methodology for covering the signs shall be coordinated with the DEN Project Manager and approved by the Airport Operations.
- 2. The Contractor will submit a Closure Schedule to the Project Manager prior to starting the project for work known to require access in the Runway and Taxiway Safety and Object free areas.
- 3. The Contractor shall schedule no work in the Runway Safety Areas and Taxiway Object Free Areas without prior coordination with the Project Manager and approval from Airport Operations.
- 4. Work within the Runway Safety Areas and Taxiway Object Free Areas adjacent to the project shall require the Runway and Taxiway to be closed to aircraft traffic for the duration of that work period.
- 5. No penetration shall be made into any Taxilane, Taxiway, or Runway Approach Surface without coordination with Project Manager and approval from Airport Operations.

The Contractor's primary access for the project will be through Gate 7. See Plans C007, Contract Layout Plan for additional information. All personnel and materials accessing the airfield complex will move in and out of the AOA at this point.

- 1. The contractor employees and their subcontractor employees Privately Owned Vehicles (POVs) shall be parked at the contractor staging area or off airport property. Contractor employee and subcontractor POVs shall not enter the AOA.
- 2. The Contractor will submit a schedule to the DEN Project Manager, 24 hours in advance, of any additional gate requirements, extraneous movement outside the Construction Area, or situations that would require additional clearances.
- The Contractor, it's employees and its subcontractors, vendors, suppliers, and all those vested in the project through the general contractor are to remain in the project area at all times. Movement on the AOA outside of the Construction Area Envelope is prohibited except when accessing the area or otherwise cleared.

All construction equipment and vehicles shall be marked as indicated in the Rules and Regulations Governing the Denver Municipal Airport System.

The Contractor shall stage all vehicles and equipment on the runway pavement, within the phase closure area, when not in use. Contractor may stage slow moving equipment such as tracked equipment and steel drum rollers on or near runway pavements. Equipment stored on or near runway pavements shall be consolidated into a minimum number of groups, coned off with construction delineators, and lit with light carts at night.

Prior to start of construction, the Contractor shall submit a Haul Plan to the DEN Project Manager, for FAA, and Airport Operations for approval.

The Contractor shall be responsible for maintaining all haul roads and access roads and completing rehabilitation work as necessary upon completion of the work.

The Contractor shall establish controls to limit erosion per Technical Specification Section 015719 – *Temporary Environmental Controls* and approved Stormwater Management Plan (SWMP).

The maximum allowable height of equipment working on the project area is 30 feet in all project areas unless approval to exceed this height is provided through prior coordination with the DEN Project Manager, an approved FAA Form 7460-1, or approval from Airport Operations. The Contractor shall ensure that the equipment working on the site does not exceed the height limit, as specified. The construction equipment associated with the project will need to remain below the horizontal surface, which is set at 5,584, or 150 feet above the airport elevation of 5,434 feet as measured in NAVD88.

No person or equipment is allowed outside of the designated haul route or beyond the construction areas indicated on the drawings without prior coordination with the DEN Project Manager and approval from the Manager of Airport Operations.

- 1. The Contractor shall not block or restrict access to active Runways or Taxiways at any time.
- 2. When cleared for work activity outside the Construction Area, the Barricades shall be moved to the new limits and then re-established at the conclusion of the day's work session.

The Contractor will be required to always maintain aircraft operations on the open runways and taxiways except as specified in the Contract and all closures shall be identified in the Construction Schedule and submitted to the DEN Project Manager and Airport Operations Manager prior to starting work on the project. During SMGCS conditions, the Airport Operations Manager will call to have the construction area cleared of all personnel and will coordinate aircraft activities.

Flaggers for Haul Roads and Gates will be CDOT certified. If on the AOA they will be DEN certified. All employees operating vehicles within the AOA must comply with all applicable rules and regulation listed in the Rules and Regulations Governing the Denver Municipal Airport System; see Section 3.5.4 *Vehicles in the Restricted Area,* for Driver Training requirements. Construction vehicles and personnel are restricted to the immediate work area specified by the contact for this project. At no time will vehicles or personnel

enter portions of the secure AOA or Terminal Buildings that are outside the contract area unless permitted under the guidelines of Access Services or accompanied by an Airport approved escort.

- 1. Crossings: If approved by the Airport Operations Manager, vehicle and pedestrian crossings of active taxiways and high-use or congested ramp areas may be permitted when the following provisions are met:
  - a. The Airport Operations Manager is notified before any activity begins and when the activity ends every day.
  - b. Airport Operations has coordinated the activity with Air Traffic Control and has advised the DEN Project Manager when to cross.
  - c. An Airport Operations Manager is available to contact Air Traffic Control if there are any problems.

All personnel must yield to all aircraft. Aircraft always have the right of way.

- 2. Haul Routes Crossing Active Aircraft Operation Areas:
  - a. The Contractors shall provide a minimum of one broom truck to continuously clean the surface of all pavements of any foreign object debris (FOD) or other objectionable materials that may result from hauling or other construction activities. Additional broom trucks may be required to expedite the cleanup process for landside haul routes.
  - b. The Contractor shall always provide a flag person at each location as indicated on the plans or as directed by the DEN Project Manager. Flaggers will need to be equipped with radios and monitor communications with DEN Operations. Flaggers will control vehicular traffic only.
  - c. The Contractor may not enter the Safety Area of an active Taxiway or Runway without prior coordination with the DEN Project Manager and final approval from the Airport Operations Manager. All construction equipment and vehicles shall be flagged for high daytime visibility and if appropriate, lighted for nighttime operations. Vehicles, which are not marked and lighted, shall be escorted by a vehicle that is equipped with the appropriate marking and lighting devices. Marking and lighting shall be in conformance with FAA AC 150/5210-5, current issue.

All construction equipment, vehicles, personnel, and supplies must be cleared from the taxiway safety area when directed by the DEN Project Manager or Airport Operations Management. All Contractor and Subcontractor employees must be aware of the types of safety problems and hazards associated with aircraft operations and construction activities.

During performance of this contract, the airport runways, taxiways, taxilanes, and aircraft parking aprons shall remain in use by aircraft to the maximum extent possible, CONSISTENT WITH CONTINUAL SAFETY. Aircraft use of areas near the contractor's work will be controlled to minimize disturbance to the contractor's operation. However, AIRCRAFT HAVE RIGHT OF WAY AT ALL TIMES. The Contractor shall not allow employees, subcontractors, suppliers, or any other unauthorized persons or equipment to enter or remain in any airport area, which would be hazardous to others or to aircraft operations.

Contractor personnel, airport staff and field inspectors directly involved in airport construction shall:

- 1. Be aware of the types of conditions, safety problems, and/or hazards identified each day at the airport. To ensure that all personnel are aware, daily meetings between management and supervisory personnel and their employees shall be scheduled prior to any work commencing on the shift.
- 2. Inspect all work, and/or storage areas daily for which they are responsible to be aware of current conditions.
- Promptly take all steps necessary to remedy any unsafe or potentially unsafe condition(s) discovered. Coordinate with the DEN Project Manager to ensure immediate corrective action is undertaken.
- 4. Before commencement of construction activity, the Airport Operations Manager, through coordination with the DEN Project Manager and the Contractor, shall give notice using the NOTAM system, of construction on the airport. In addition, a NOTAM shall be issued for the completion of construction on the airfield.
- 5. Construction Area Marking: Runway closed crosses, temporary lighting, barricades, delineators, and flagging are required as shown on the plans. Flags, delineators, edge lights, and/or signs shall be used as necessary:
  - a. To clearly separate all construction from other parts of air operations area,
  - b. To identify isolated hazards, such as open manholes, excavations, areas under repair, stockpiled material, waste areas, etc.

Vehicle and pedestrian access routes used for airport construction shall be controlled to prevent any unauthorized entry of persons, vehicles, or animals.

Vehicle parking areas for contractor employees shall be designated in advance to minimize traffic in open/active aircraft movement areas.

Contractor vehicles and equipment shall be flagged for high daytime visibility and if appropriate, lighted for nighttime operations. Vehicles, which are not marked and lighted, shall be escorted by one that is equipped with appropriate marking and lighting devices. Marking and lighting shall be in conformance with FAA AC 150/5210-5, current edition, or as outlined in Section 011430 – *Vehicle and Equipment Permitting* of the contract documents.

The Contractor will be required to conform to the specific requirements as outlined in Section 011420 – *Security Requirements and Sensitive Security Information (SSI)* of the contract documents.

# 3.6.1 Location of Stockpiled Construction Materials

Stockpiled materials and equipment storage are not permitted within the RSA/TSA, OFZ or OFA of an operational runway or taxiway. Stockpiled material shall be constrained in a manner to prevent movement resulting from either aircraft jet blast or wind conditions more than ten miles per hour. Stockpile height shall not exceed 15 feet and shall not penetrate protected airspace (transitional surface or primary surface).

Open trenches exceeding 3 inches in depth and 5 inches in width or stockpiled material are not permitted within the limits of safety areas of operational runways or taxiways. Stockpiled material shall not be permitted within the protected areas of the runways or allowed to penetrate any of the protected airspace.

In addition, all demolished pavement materials and unclassified excavation materials shall be stockpiled at the locations shown on the attached Exhibits.

Reference Section Foreign Object Debris (FOD) management and Section Protection of Runway and Taxiway Safety Areas for additional information regarding stockpile management.

# 3.6.2 Vehicle and Pedestrian Operations

Vehicle and pedestrian access routes for airport construction projects must be controlled to prevent inadvertent or unauthorized entry of persons, vehicles, or animals onto the AOA. The Airport will coordinate requirements for vehicle operations with the affected airport tenants, contractors, and the FAA air traffic manager. Specific vehicle and pedestrian requirements for this project are as follows:

All construction vehicles and personnel shall be restricted to the immediate work areas specified by the contract for this project. These areas include the haul routes into the work area, the designated contractor staging area and the taxiway area under construction. Use of alternate haul routes or staging areas by the contractor shall not be permitted without prior notification and approval by DEN.

Access or haul routes used by contractor vehicles must be clearly marked to prevent inadvertent entry to areas open to airport operations. Construction traffic must remain on the haul road, never straying from the approved paths. Maintenance and upkeep of the haul roads are the responsibility of the contractor. Dust must be removed from the haul roads by mechanical sweeping. Application of water on dirt or gravel haul routes must be provided as often as necessary. Haul roads in any airport traffic areas must be especially monitored for dust and debris to prevent any potential Foreign Object Debris (FOD) situations. The contractor is responsible for any damage caused by construction traffic on the haul roads, regardless of whether such traffic is in an approved or un-approved traffic area. Following construction completion, the contractor shall grade, reseed, clean, or otherwise restore the haul route areas to their original conditions prior to construction activities. Special attention must be given to ensure that if construction traffic is to share or cross any ARFF routes that ARFF right of way is not impeded at any time, and that construction traffic on haul roads do not interfere with NAVAIDs or approach surfaces of operational runways. Work necessary in maintaining the haul roads and compliance with safety and security requirements is considered incidental to the project, and therefore, shall not be directly paid for.

Contractor parking and equipment staging areas have been identified as the Contractor Staging Area and are graphically identified in the drawing set and the attached exhibits.

The Contractor must service all construction vehicles within the limits of the project work area or the contractor staging area. Parked construction vehicles must be outside the OFZ and never in the safety

area of an active runway or taxiway. In some cases, a complex setup procedure makes movement of specialized equipment infeasible, inactive equipment must not be parked on closed taxiways or runways. If it is necessary to leave specialized equipment on a closed taxiway at night, the equipment must be well lighted. Employees shall also park construction vehicles outside the OFA when not in use by construction personnel (for example, overnight, on weekends, or during other periods when construction is not active). Parking areas must not obstruct the clear line of sight by the ATCT to any taxiways or runways under air traffic control nor obstruct any runway visual aids, signs, or navigation aids. The FAA must also study those areas to determine effects on airport design criteria, surfaces established by 14 CFR Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace (Part 77), and on NAVAIDs and Instrument Approach Procedures (IAP).

The project area shall be bounded by the low-profile barricades identifying contractor personnel and vehicle area operation limits. These barricaded project limits, haul routes, contractor staging areas, and associated safety and security details are also provided graphically in the attached exhibits, reference Appendix A.

At no time will vehicles or personnel enter portions of the secure AOA outside the contract area unless permitted and accompanied by an airport approved escort.

All construction-related activity taking place within any active area of the AOA requires the presence of a DEN approved and badged escort having radio communication with the FAA control tower unless prior approval is obtained from the Airport Operations Manager. Spotters and/or flaggers shall, at a minimum, be properly badged for access on the airfield. Reference Section 3.5 Security Requirements for badging requirements at the Airport. The contractor's flaggers and/or spotters shall always be required to monitor transceiver radios tuned to the ATCT Ground Control frequency at DEN. Enough quantity of radios shall be supplied by the Contractor. Such radios shall be used to obtain proper clearance for movement of equipment, personnel etc. on or across active AOA areas. In the rare occasion that emergency operations must occur due to an aircraft in distress or any other incident, the flagman monitoring the radio shall have the means to communicate with the superintendent or foreman of the project to stop truck traffic and perform the requests of the ATCT regarding routing traffic or vacating the site. Any command or instruction given by the control tower, DEN personnel, flaggers, or spotters shall be immediately obeyed by the equipment operator.

All vehicles operating on the airport and in the general vicinity of the safety area or in aircraft movement areas must be marked with flashing yellow/amber beacons or orange and white flags. Use of flags is limited to daylight hours. During hours of darkness or low visibility, vehicles shall be equipped with flashing yellow/amber beacons. In addition, all vehicles and equipment will have identifying symbols with block-type characters of contrasting color that are easily legible.

Beacons and flags must be maintained to standards and in good working and operational condition. Beacons must be located on the uppermost part of the vehicle structure, visible from any direction, and flash 75 +/- 15 flashes per minute. Flags shall be 3' by 3' with alternating 1' by 1' international orange and white squares and shall be replaced by the contractor if they become faded, discolored, or ragged as determined by DEN.

At no time shall active taxiways or runways be crossed by construction vehicles or equipment without notification and proper approval/clearance from DEN Operations and air traffic control.

Aircraft traffic will continue to use existing runways, aprons, and taxiways of the Airport during the time that work under the project contract is being performed. The Contractor shall, always, conduct the work as to create no hindrance, hazard, or obstacle to aircraft using the Airport.

Airport operations and the Contractor must maintain a high level of security during construction when access points are created in the security fencing to permit access by construction vehicles to the project work site. Contractor access gates shall be equipped and/or manned by third party security personnel to prevent unauthorized access by vehicles, animals, or people. Procedures conforming to DEN security protocols will be in place to ensure that only authorized persons and vehicles have access to the AOA and to prohibit "piggybacking" behind another person or vehicle. Access shall always be made available to all airport emergency vehicles traveling to operations areas within the proximity of the construction work zone.

# 3.7 WILDLIFE MANAGEMENT

Contractor personnel must be aware of and avoid any activities that create or encourage wildlife hazards at Denver International Airport. Contractors must adhere to the following guidelines:

- 1. Water cannot be allowed to collect and pool for greater than any single 24-hour period.
- 2. Wherever able rip rap should have a slurry or grout base to prevent burrowing animals.
- 3. Trash of any kind, especially food, cannot be accessible to wildlife. Waste or excess loose material must be continuously removed.
- 4. Gates and fences must be maintained as to prevent entry by wildlife into the AOA.
- 5. Projects that require relocating or otherwise removal and reinstallation of KDEN's perimeter security fence will include the addition of a burrow-resistant fencing skirt/apron, design to be approved by Airport Operations and WS biologist.
- 6. All seed mixes must be approved by USDA Wildlife Services personnel. The seed specifications are in Appendix H below and cannot be more than 0.01 percent filler. Plant species not listed in Appendix H below will not be introduced at DIA.
- 7. Vegetation must be maintained in a manner which does not attract wildlife. Tall grass, shrubs, or other vegetation will be immediately mowed or removed if observed to attract wildlife.
- 8. If any activity has the potential or is observed to attract wildlife to a particular site on or within 5 miles of the AOA, USDA WS biologists must be notified for appropriate mitigation efforts.

# 3.8 FOREIGN OBJECT DEBRIS (FOD) MANAGEMENT

Special care and measures shall be taken to prevent Foreign Object Debris / Damage (FOD) when working in an airport environment. The Contractor shall be held responsible for implementing an approved FOD Management Plan as a part of the SPCD. The FOD Management Plan will have procedures for prevention, regular cleanup, and containment of construction material and debris. The Contractor will ensure all vehicles related to the construction project using paved surfaces in the AOA shall be free of any debris that could create a FOD hazard. Special attention will be given to the cleaning of cracks and pavement joints. All taxiways, aprons, and runways must remain clean. Waste containers with attached lids shall be required on construction sites.

Special attention will be given to securing lightweight construction material (concrete insulating blankets, tarps, insulation, etc.). Specific securing procedures and/or chain-link enclosures may be required. All waste containers in the Contractors Staging areas shall be covered.

Contractors will provide their own equipment for vehicle and equipment washing and clean up.

Immediate access to a vacuum truck or power sweeper is required when construction occurs on any pavement area inside the AOA unless an appropriate alternative has been approved by the Airport Engineer and Airport Operations Manager.

# 3.9 HAZARDOUS MATERIALS (HAZMAT) MANAGEMENT

Contractors operating construction vehicles and equipment on the airport must be prepared to expeditiously contain and clean-up spills resulting from fuel, hydraulic fluid, or other chemical fluid leaks. Transport and handling of other hazardous materials on an airport also requires special procedures. To that end, the contractor is required to develop and implement spill prevention and response procedures for vehicle operations. The contractor shall incorporate these procedures into the SPCD. This includes maintenance of appropriate Safety Data Sheets (SDS) and appropriate prevention and response equipment on-site.

# 3.10 NOTIFICATION OF CONSTRUCTION ACTIVITIES

The following is information and procedures for immediate notification of airport users and the FAA of any conditions adversely affecting the operational safety of the airport.

The Contractor shall work with the DEN Project Manager regarding the construction schedule and planned activities which may require airfield pavement closures or potentially hazardous situations. The DEN Project Manager will work with airport operator staff to initiate or cancel NOTAMs. The airport operator must coordinate the issuance, maintenance, and cancellation of NOTAMs about airport conditions resulting from construction activities with tenants and the local air traffic facility (control tower, approach control, or air traffic control center), and must provide information on closed or hazardous conditions on airport movement areas to the FAA Flight Service Station (FSS) so it can issue a NOTAM. The airport operator must file and maintain a list of authorized representatives with the FSS. Refer to AC 150/5200-28, current edition, Notices to Airmen NOTAMs on shutdown or irregular operation of FAA owned facilities. Any person having reason to believe that a NOTAM is missing, incomplete, or inaccurate must notify the airport operator.

Direct coordination between the Contractor and the DEN Project Manager will be required to foresee closures or other hazardous conditions resulting from construction activities. This information will be discussed during the weekly progress meetings.

This CSPP requires that the Contractor notify Airport Operations in advance of any required utility shutdown or disruption, and hazardous materials on the airport.

In project areas where planned closures or placement of barricades will redirect, or partially interfere with ARFF operations, DEN Airport Operations will inform the ARFF personnel and the ARFF personnel will conduct practice runs with each ARFF shift after the barricades have been installed.

No part of this project has been designed to penetrate the Part 77 surfaces during or after construction. The FAA shall be notified if any proposed construction or alteration of objects that affect navigable airspace, as defined in Part 77. This includes construction equipment, batch plants, material stockpiles, and proposed parking areas for this equipment (i.e., cranes, graders, other equipment) on airports. FAA Form 7460-1, Notice of Proposed Construction or Alteration can be used for this purpose and submitted to the appropriate FAA Airports or Regional or District Office. Further guidance is available on the FAA website at https://oeaaa.faa.gov/oeaaa/external/portal.jsp

With some exceptions, Title 14 CFR Part 157, Notice of Construction, Alteration, Activation, and Deactivation of Airports, requires that the airport operator notify the FAA in writing whenever a non-Federally funded project involves the construction of a new airport; the construction, realigning, altering, activating, or abandoning of a runway, landing strip, or associated taxiway; or the deactivation or abandoning of an entire airport. Notification involves submitting an FAA Form 7480-1, Notice of Landing Area Proposal, to the nearest FAA Airports Regional or District Office.

For emergency (short notice) notification about impacts to both airport owned and FAA owned NAVAIDs, contact 866-432-2622.

- 1. Airport owned/FAA maintained. If construction operations require a shutdown of more than 24 hours, or more than 4 hours daily on consecutive days, of a NAVAID owned by the airport but maintained by the FAA, provide a 45-day minimum notice to FAA ATO/Technical Operations prior to facility shutdown.
- 2. FAA owned
  - a. General: The airport operator must notify the appropriate FAA ATO Service Area Planning and Requirements (P&R) Group a minimum of 45 days prior to implementing an event that causes impacts to NAVAIDs. (Impacts to FAA equipment covered by a Reimbursable Agreement (RA) do not have to be reported by the airport operator.)
  - b. Coordinate work for an FAA owned NAVAID shutdown with the local FAA ATO/Technical Operations office, including any necessary reimbursable agreements and flight checks. Detail procedures that address unanticipated utility outages and cable cuts that could impact FAA NAVAIDs. In addition, provide seven day notice to schedule the actual shutdown.

# 3.10.1 Points of Contact/List of Responsible Representatives

Airport Phone Numbers

1. Fire, Rescue: Operations Communications Center: 303.342.4200

- 2. Police: Denver Police Dept (dispatch): 303.342.4211
- 3. Information and Compliance Construction Office Project Manager 303.342.2663
- Access Services:
  ID Badging: 303.342.4300
  Airport Security: 303.342.4307
  Vehicle Permits: 303.342.4308
  Driver Qualification: 303.342.4310

# 3.10.2 Notices to Airmen (NOTAM)

Only airport operations may initiate or cancel NOTAMs on airport conditions and is the only entity that can close or open a runway or taxiway. The Airport must coordinate the issuance, maintenance, and cancellation of NOTAMs about airport conditions resulting from construction activities with tenants and the local air traffic facility (control tower, approach control, or air traffic control center), and must provide information on closed or hazardous conditions on airport movement areas to the FAA Flight Service Station (FSS) so it can issue a NOTAM. The Airport must file and maintain a list of authorized representatives with the FSS. Only the FAA may issue or cancel NOTAMs on shutdown or irregular operation of FAA owned facilities. Any person having reason to believe that a NOTAM is missing, incomplete, or inaccurate must notify Airport Operations.

Any NOTAMs for planned airfield closures for this project must be coordinated through the airport operations manager and the airports duly appointed construction management representative. Reference Section 3.2 Phasing for planned closures for this project, which require issuance of a NOTAM.

# 3.10.3 Emergency Notification Procedures

In the event of an emergency, the contractor shall be required to contact the Airport Security by dialing (303) 342-4307. Spills and releases must be reported to DEN airport communications at (303) 342-4200.

In the event of an aircraft emergency, severe weather conditions, or any issue that may affect aircraft operations as determined by DEN, the Contractor's personnel and/or equipment may be required to immediately vacate the areas affected. Points of contact for the various parties involved with the project shall be identified and shared at the pre-construction meeting among the various parties, reference Section 3.1.3 Pre-construction Conference. Specific emergency notification procedures shall be incorporated into the contractor's SPCD.

# 3.10.4 Coordination with ARFF Personnel

The contractor shall coordinate, through the duly appointed airport representative, with ARFF personnel, mutual aid providers, and other emergency services if construction requires the following:

- » The deactivation and subsequent reactivation of water lines or fire hydrants, or
- » The re-routing, blocking and restoration of emergency access routes, or
- » The use of hazardous materials on the airfield.

Procedures and methods for addressing any planned or emergency response actions on the airfield concerning this project shall be established and implemented prior to the start of construction.

# 3.10.5 Notification to the FAA

#### 3.10.5.1 Part 77

Any person proposing construction or alteration of objects that affect navigable airspace, as defined in Part 77, must notify the FAA. This includes construction equipment and proposed parking areas for this equipment (i.e., cranes, graders, other equipment) on airports. FAA Form 7460-1, Notice of Proposed Construction or Alteration can be used for this purpose and submitted to the appropriate FAA Airports Regional or District Office. This form will be completed by the airport and submitted for FAA review. The contractor is required to comply with any stipulations set forth in the approved 7460-1.

#### 3.10.5.2 Part 157

With some exceptions, Title 14CFR Part 157, Notice of Construction, Alteration, Activation, and Deactivation of Airports, requires that the Airport notify the FAA in writing whenever a non-Federally funded project involves the construction of a new airport; the construction, realigning, altering, activating, or abandoning of a runway, landing strip, or associated taxiway; or the deactivation or abandoning of an entire airport. Notification involves submitting FAA Form 7480-1, Notice of Landing Area Proposal, to the nearest FAA Airports Regional or District Office. It is not anticipated that Part 157 notifications will be required for this project.

#### 3.10.5.3 NAVAID's

For emergency (short-notice) notification about impacts to both airport owned and FAA owned NAVAIDs, contact: 866-432-2622.

## 3.10.5.3.1 Airport owned/FAA maintained

If construction operations require a shutdown of more than 24 hours, or more than 4 hours daily on consecutive days, of a NAVAID owned by the airport but maintained by the FAA, provide a 45-day minimum notice to FAA ATO/Technical Operations prior to facility shutdown.

#### 3.10.5.3.2 FAA owned

The Airport must notify the appropriate FAA ATO Service Area Planning and Requirements (P&R) Group a minimum of 45 days prior to implementing an event that causes impacts to NAVAIDs. Coordinate work for an FAA owned NAVAID shutdown with the local FAA ATO/Technical Operations office, including any necessary reimbursable agreements and flight checks. Detail procedures that address unanticipated utility outages and cable cuts that could impact FAA NAVAIDs. In addition, provide seven days of notice to schedule the actual shutdown. Contractor may be required to hire a private utility locate company in the event the FAA does not locate their utility lines.

# 3.11 INSPECTION REQUIREMENTS

# 3.11.1 Daily (or more frequent) inspections

Inspections shall be conducted by the contractor at least daily, but more frequently, if necessary, to ensure conformance with the CSPP. In addition to the Contractor's required inspections, airport operations will inspect the construction site to ensure compliance with the CSPP and the SPCD.

## 3.11.2 Final Inspections

Extended taxiway closures may require safety inspections at certificated airports prior to allowing air carrier service. Coordination is required with the FAA Airport Certification Safety Inspector (ACSI) to determine if a final inspection will be necessary.

# 3.11.3 Underground Utilities

Special attention should be given to preventing unscheduled interruption of utility services and facilities. The location of all cables and utilities should be identified prior to construction activities.

- The Contractor shall coordinate with the DEN Project Manager, DEN Operations, FAA, National Weather Service, utility companies, and any other appropriate entity or organization as necessary to locate and identify all utilities in the project area where demolition or excavation is to occur prior to demolition or digging operations. NAVAIDS, Weather Service facilities, electric cables, and other utilities must be fully protected during the entire construction time.
- 2. Power, communication, and control cables leading to and from any FAA NAVAIDS, Weather Service, and other facilities will be marked in the field by the appropriate individuals as identified in Section 011810 – Utilities Interface of the contract documents for the information of the Contractor before any work in their general vicinity is started. Thereafter, through the entire duration of construction, they shall be protected from any possible damage, including crossing with unauthorized equipment.

## 3.11.4 Penalties

Any employer not regulated under 49 C.F.R. Part 1544, Aircraft Operator, will be responsible for payment or reimbursement to the City & County of Denver of any Civil Penalties imposed by the Transportation Security Administration (TSA) for individual security violations by their employees for violations under 49 C.F.R. Part 1542.

An employee may be personally subject to Civil Penalties imposed by the Transportation Security Administration (TSA) for individual security violations they commit under 49 C.F.R Part 1542.

Everyone who is issued an Airport ID Badge shall comply with all Security Advisories, Denver Municipal Airport System Rules and Regulations, the Manager's Directives, and DEN Standard Policies and Procedures regarding Airport Safety, Security, and Operations. The failure of any individual to comply with such Security Advisories, rules and directives will result in the issuance of a Violation Notice and may result in the assessment of a Federal Civil Penalty and/or the denial, suspension, or revocation of Airport ID Badges.

No individual to whom an Airport ID Badge or Security Key(s) (including Intellikey(s)) has been issued shall intentionally perform any of the following acts as described in Denver Municipal Airport System Rules and Regulations Part 20.04-16. The intentional commission of any such acts, due to their critical negative effect on the safety and security of Airport employees and the traveling public, is reason for immediate confiscation and suspension (and possible permanent revocation) of the Airport ID Badge, issuance of a Violation Notice, and a Violation Notice Hearing in accordance with Section 20.04-8.

Denver International Airport Airport Security 8500 Pena Blvd #451 Denver, CO 80249 Office: 303-342-4300

# 3.12 SPECIAL CONDITIONS

In the event of an aircraft emergency, the Contractor's personnel and/or equipment may be required to immediately vacate the area. The Contractor will receive notification from airport operations and/or airport engineering when special conditions require the construction site to be vacated. In any event, extreme care shall be exercised should construction personnel identify any ARFF (Airport Rescue and Fire-Fighting) vehicle with emergency lights displayed. This will generally mean that an emergency is imminent. Reference Section 3.10 Notification of Construction Activities.

Special attention shall be given to preventing unscheduled interruption of utility services and facilities. Where required due to construction purposes, the FAA shall locate all their underground cables. The Contractor shall locate and/or arrange for the location of all the underground cables. When an underground cable is damaged due to the Contractor's negligence the Contractor shall immediately repair the cable affected at their own expense. Full coordination between airport staff, field inspectors, and construction personnel will be exercised to ensure that all airport power and control cables are fully protected prior to any excavation. Locations of cabling will be marked prior to beginning excavation.

# 3.13 RUNWAY AND TAXIWAY VISUAL AIDS

Runway and taxiway visual aids include marking, lighting, signs, and other visual NAVAIDs on the airfield. Those areas where aircraft will be operating shall be clearly and visibly separated from construction areas, including closed runways. Throughout the duration of the construction project, the contractor shall inspect and verify that these areas remain clearly marked and visible always and that marking, lighting, signs, and visual NAVAIDs remain in place and operational.

# 3.13.1 General

Airport markings, lighting, signs, and visual NAVAIDs must be clearly visible to pilots, not misleading, confusing, or deceptive. All must be secured in place to prevent movement by prop wash, jet blast, wing vortices, or other wind currents and constructed of materials that would minimize damage to an aircraft in the event of inadvertent contact.

## 3.13.2 Markings

No airfield markings will be affected under this project. Markings must follow the standards of AC 150/5340-1M, Standards for Airport Markings, current edition, and the drawings and technical specifications of this project.

# 3.13.3 Lighting and Visual NAVAIDs

All taxiway edge lights in those sections of taxiways closed to aircraft traffic will be either de-energized or blacked out by use of an appropriately cut length of PVC pipe. Centerline lighting that conflicts with the temporarily relocated or closed taxiway routing shall be either de-energized, removed from the circuit by use of jumpers or as detailed in the project drawing set. Reference Appendix A for locations and details.

» No NAVAIDs will not be affected under this project.

The removal of this NAVAID and lighting systems from service will require the prior issuance of a NOTAM. Reference Section Notices to Airmen (NOTAM) on procedures associated with the issuance of a NOTAM.

# 3.13.4 Signs

Airfield signage directing aircraft into the closed airfield surfaces for this project will be blacked out.

# 3.14 MARKING AND SIGNS FOR ACCESS ROUTES

Location of haul routes on the airport site shall be as specified in the project drawing set and as provided graphically in the attached exhibits, reference Appendix A. It shall be the Contractor's responsibility to coordinate off-site haul routes with the appropriate owner who has jurisdiction over the affected route. The haul routes, to the extent possible, shall be marked and signed in accordance with FAA airfield signage requirements, the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) and/or state highway specifications. Signs adjacent to areas used by aircraft must meet the airfield general frangibility requirements as required by the airport and subsequent approval by the Owner. Meeting airfield frangibility requirements may require modification to size and height guidance in the MUTCD.

# 3.15 HAZARD MARKING AND LIGHTING

# 3.15.1 Purpose

Hazard marking and lighting prevents pilots from entering areas closed to aircraft and prevents construction personnel from entering areas open to aircraft traffic. To that end, comprehensible warning indicators for any area affected by construction that is normally accessible to aircraft, personnel, or vehicles shall be installed and maintained by the Contractor for the duration of construction operations.

# 3.15.2 Equipment

Candlestick Barricades of the type detailed in the project drawings shall be used. Layout locations for this equipment are as shown in the project drawings and in the attached exhibits, reference Appendix A, Exhibits. The Contractor shall have a person on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades. The Contractor must file the contact person's information with the Airport. Lighting shall be checked for proper operation at least once per day, preferably at dusk.

# 3.16 PROTECTION OF RUNWAY AND TAXIWAY SAFETY AREAS

Safety area encroachments, improper ground vehicle operations and unmarked or uncovered holes and trenches near aircraft operation surfaces and construction areas are the three most recurring threats to safety during construction. Protection of runway and taxiway safety areas, object free areas, obstacle free zones, and approach/departure surfaces shall be a standing requirement for the duration of the project. Reference Section 3.10 Notification of Construction Activities and Section 3.13 Runway and Taxiway Visual Aids for taxiway closure requirements. Reference Section 3.15 Hazard Marking and Lighting for hazard marking. Reference Section Other Limitations on Construction for height restrictions (as required).

# 3.16.1 Runway Safety Area (RSA)

A runway safety area is the defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an excursion from the runway by aircraft.

| Runway         | RSA Distance from<br>Centerline (ft.) | RSA Width (ft.) | RSA Length from<br>End of Runway (ft.) |
|----------------|---------------------------------------|-----------------|--|
| Runway 17L-35R | 250                                   | 500             | 1000                                   |
| ADG V          |                                       |                 |  |

No construction may occur within the existing RSA while the runway is open. Any construction between the RSA and Runway holding position line must be approved with Airport Operations prior to starting work.

The Airport must coordinate any adjustment of RSA dimensions, to meet the above requirement, with the appropriate FAA Airports Regional or District Office and the local FAA air traffic manager and issue a NOTAM.

Open trenches or excavations are not permitted within the RSA while the runway is open. The Contractor must backfill trenches before the runway is opened. Coverings are not allowed in runway safety areas.

After the Runway has been closed, the Contractor must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by the Airport, and light them with red lights during hours of restricted visibility or darkness.

Soil erosion must be controlled to maintain RSA standards, that is, the RSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

# 3.16.2 Runway Object Free Area (ROFA)

Construction, including excavations, may be permitted in the ROFA. However, equipment must be removed from the ROFA when not in use, and material shall not be stockpiled in the ROFA if not

necessary. Stockpiling material in the OFA requires submittal of a 7460-1 form and justification provided to the appropriate FAA Airports Regional or District Office for approval.

#### TABLE 1-2: RUNWAY OBJECT FREE AREA

| Run      | iway   | ROFA Distance from | ROFA Width (ft.) | ROFA Length from End of |
|----------|--------|--------------------|------------------|-------------------------|
|          |        | Centerline (ft.)   |                  | Runway (ft.)            |
| Runway 1 | 7L-35R | 400                | 800              | 1,000                   |
| ADG      | V      |                    |                  |                         |

It is anticipated that elements of this project and associated construction activities will require work within the ROFA for Runway 17L-35R while open.

## 3.16.3 Taxiway Safety Area (TSA)

The taxiway safety area is a defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway. No construction may occur within the TSA while the taxiway is open for aircraft operations.

#### TABLE 1-3: TAXIWAY SAFETY AREA

| Taxiway          | TSA Distance from Centerline (ft.) | TSA Width (ft.) |  |
|------------------|------------------------------------|-----------------|--|
| Taxiways (ADG V) | 107                                | 214             |  |

Open trenches or excavations are not permitted within the TSA while the taxiway is open. The Contractor must backfill trenches before the taxiway is opened. Coverings are not allowed in taxiway safety areas.

After the taxiway has been closed, the Contractor must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by the Airport, and light them with red lights during hours of restricted visibility or darkness.

Soil erosion must be controlled to maintain TSA standards, that is, the TSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

# 3.16.4 Taxiway and Taxilane Object Free Area (TOFA)

Unlike the Runway Object Free Area, aircraft wings regularly penetrate the taxiway object free area during normal operations. Thus, the restrictions are more stringent. No construction may occur within the TOFA while the taxiway is open for aircraft operations.

#### TABLE 1-4: TAXIWAY OBJECT FREE AREA

| Taxiway                | TOFA Distance from Centerline (ft.) | TOFA Width (ft.) |  |
|------------------------|-------------------------------------|------------------|--|
| Taxiways (ADG V – 13B) | 142.5                               | 285              |  |

Reference Section 3.2 Phasing, for details on taxiway and taxilane closures associated with this project.

# 3.16.5 Obstacle Free Zone (OFZ)

Construction personnel, material, and/or equipment may not penetrate the OFZ while the runway is open for aircraft operations. The OFZ is a defined volume of airspace centered about and above the runway centerline.

## 3.16.6 Runway Approach/Departure Surfaces

All personnel, materials, and/or equipment must remain clear of the applicable threshold siting surfaces. Objects that do not penetrate these surfaces may still be obstructions to air navigation and may affect standard instrument approach procedures. Coordinate with the FAA through the appropriate FAA Airports Regional or District Office.

Construction activity in a runway approach/departure area may result in the need to partially close a runway or temporarily relocate the existing runway threshold. Partial runway closure, the temporary relocation of the runway threshold, or the closure of the runway and other portions of the movement area also require coordination through the Airport with the appropriate FAA air traffic manager (FSS if non-towered) and ATO/Technical Operations (for affected NAVAIDS) and airport users.

# 3.17 OTHER LIMITATIONS ON CONSTRUCTION

The following prohibitions are in effect for the duration of this project:

- 1. No use of tall equipment (cranes, concrete pumps, etc.) unless a 7460-1 determination letter is issued for such equipment.
- 2. No uses of open flame welding or torches unless fire safety precautions are provided, and the Airport has approved their use. No use of electrical blasting caps or explosives of any kind on or within 1,000 ft. of the airport property.
- 3. No use of flare pots within the AOA.

# 3.18 CONTRACTOR'S SAFETY PLAN COMPLIANCE DOCUMENTS (SPCD)

The Contractor is responsible for developing and providing a Safety Plan Compliance Document (SPCD) as described in FAA AC 150/5300-2G and in Part 1 of Technical Specifications Section 01111. The Contractor is required to comply with the Construction Safety and Phasing Plan and their Safety Plan Compliance Document. The Contractor's program must meet as a minimum all applicable federal, state, and local government requirements.

1. The Contractor must, as part of the Contractor's Work Plan, submit six copies of the following information for review and acceptance by the DEN Project Manager prior to construction:

- a. Name of the Contractor's site safety representative.
  - i. If the Contractor is running multiple shifts or working more than 40 hours per week, the name of an assistant Contractor's safety representative who can act in the absence of the site safety representative.
- b. Name of the Contractor's Construction Safety and Phasing Plan (CSPP) and Safety Plan Compliance Document (SPCD) representative and alternates (if different that the site safety representative) who will be always on-site while construction activities are taking place. The representative will be responsible for monitoring compliance with the CSPP and SPCD.
- c. Methodology of familiarizing all Contractor and subcontractor personnel with the safety procedures and regulations on the airport. Provide a point of contact and alternate who will coordinate an immediate response to correct any construction-related activity that may adversely affect the operational safety of the airport. The point of contact or alternate must be available to supply 24-hour coverage.
- d. Inspection plan to conduct inspections sufficiently frequently to ensure construction personnel comply with the CSPP and SPCD and that there are no altered construction activities that could create potential safety hazards.
- e. Methods of restricting movement of construction vehicles and personnel to permitted construction areas by flagging, barricading, erecting temporary fencing, or providing escorts, as appropriate and as specified in the CSPP and SPCD.
- f. Twenty-four hours per day emergency phone numbers of Contractor site management to be used in case of injury or accident. Provide at least four contacts.
- g. The Contractor's method of ditching and trenching excavation to be used including how slopes will be stabilized with calculations showing the slope stability. The Contractor shall also show how material will be stored beside the excavation. Stored material will include the excavated and backfilled material.
- h. How injuries or accidents will be handled including samples of the forms used to report injurie or accidents.
- i. How employees will be handled who are unable to safely perform their duties, including how the Contractor will determine whether an employee is unable to safely perform his duties.
- j. How and when equipment will be checked to see that it is safe, that all safety guards are in place and that the equipment is being used for its designed purpose and within its rated capacity.
- k. How and when all electric devices will be checked for proper grounding and insulation. What system will be used to lock out electric systems that should not be energized.
- I. How trash and human organic waste will be disposed.
- m. How snow and ice will be removed from the project area.
- n. How concrete forms will be anchored to ensure their stability, including calculations showing that the forms will safely hold the maximum construction loads.
- o. How flammable materials will be stored and handled, and how any spills will be cleaned up and removed for disposal.

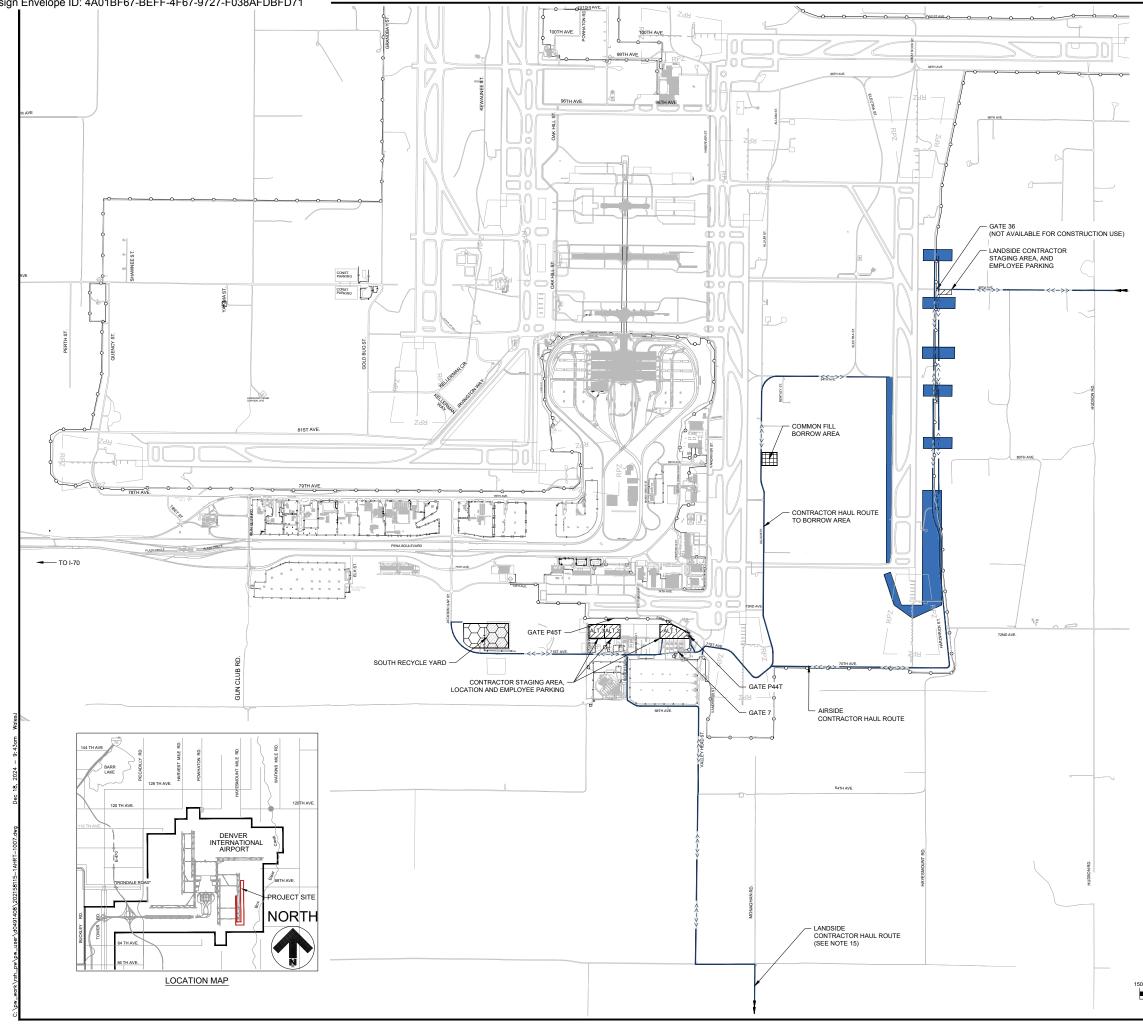
- p. What system will be used to prevent fires, and if fires do occur who will be trained to fight them. Also, what firefighting equipment will the Contractor have available and how will this equipment's condition be monitored.
- q. How materials will be received, unloaded, stored, moved, and disposed of.
- r. How personnel working above ground level will be protected from falling.
- s. How people working underneath work will be protected.
- t. What will be done to protect personnel in case of severe weather.
- u. How adequate lighting will be provided and monitored.
- v. How air quality will be monitored, and personnel removed or protected from air that is hazardous for humans.
- w. How the safety of work platforms, man lifts, material lifts, ladders, shoring, scaffolding, etc. will be ensured relating to load capacity and the protection of personnel using or working around them.
- x. How employees will be protected from the effects of jet blast.
- 2. The Contractor shall provide complete copies of its Hazard Communication Program to the DEN Project Manager for review and acceptance at least 30 days before on-site construction begins that involves any hazardous material. The DEN Project Manager will use the OSHA regulations as the framework for reviewing the Contractor's construction safety programs.
- 3. Prior to the start of any work by a contractor or subcontractor employee, the Contractor shall provide the DEN Project Manager with a list of its employees, subcontractor's employees, and other personnel the Contractor has requested to work at Denver International Airport, who have signified in writing that they have been briefed on, or have read and understand, the Contractor's Safety Plan.
- 4. Implement the approved Contractor's SPCD as described in Part 1 of Technical Specifications 01111. If the Contractor experiences a lost time or injury rate greater than 75 percent of the national average for all construction, the Contractor shall audit its safety procedures and submit a plan to reduce its rates. If at any time the lost time or injury rates experienced by the Contractor is 150 percent or more of the national average for construction the Contractor shall immediately hire an independent safety professional who shall audit the Contractor's procedures and operations and make a report of changes that the Contractor should implement to reduce the rate including changing personnel. This report shall be submitted to the DEN Project Manager. The Contractor shall immediately begin implementing the recommendations. A weekly report shall be submitted by the Contractor on the status of the implementation of the recommendations. Failure to comply with these requirements is a basis to withhold a portion of progress payments.

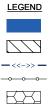
APPENDICES

APPENDIX A CONSTRUCTION SAFETY AND

PHASING PLANS

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APPROXIMATE WORK LIMITS CONTRACTOR STAGING AREA CONTRACTOR HAUL ROUTE AOA FENCE CONCRETE/ASPHALT RUBBLE DISPOSAL SITE

BORROW SITE

# NOTES:

- CONTRACTOR WILL BE REQUIRED TO REPAIR ANY DAMAGE TO EXISTING HAUL ROUTE. THE AIRSIDE ROUTE IS A LIMITED ACCESS ROUTE (LAR). SPECIAL DEN SIDA BADGING AND DRIVER TRAINING IS REQUIRED FOR THIS ACCESS.
- 2. THE CONTRACTOR IS REQUIRED TO SUBMIT A TRAFFIC CONTROL PLAN AND SCHEDULE TO MAINTAIN VEHICULAR ACCESS, 10 DAYS PRIOR TO CONSTRUCTION FOR REVIEW AND APPROVAL BY THE DEN PROJECT MANAGER. THE PLAN SHALL IDENTIFY THE NUMBER OF GATE GUARDS/FLAGGERS, LOCATION OF THE GATE GUARDS/FLAGGERS, TEMPORARY SIGNAGE AND ALL OTHER TRAFFIC CONTROL DEVICES TO MAINTAIN VEHICULAR TRAFFIC CONTROL AT ALL TIMES. THIS INFORMATION SHOULD BE SUBMITTED FOR AIRPORT SECURITY AND TSA APPROVAL.
- ALL TRAFFIC CONTROL MEASURES (VEHICULAR AND AIRCRAFT) REQUIRED FOR THIS CONTRACT SHALL BE CONSIDERED INCIDENTAL TO SPECIFICATION 015525 PAY ITEMS.
- 4. A MINIMUM OF TWO (2) GATE GUARDS WILL BE SUPPLIED BY THE CINT AND PAID FOR BY THE CONTRACTOR WHENEVER THE CONTRACTOR USES A CONSTRUCTION ACCESS GATE TO THE AOA. THE CONTRACTOR SHALL REQUEST GATE GUARDS FROM DEN A MINIMUM OF 48 HOURS PRIOR TO REQUIRING GATE GUARDS. CANCELLATION OF GATE GUARDS MUST BE MADE BY THE CONTRACTOR TO DEN A MINIMUM OF 24 HOURS PRIOR TO DATE REQUESTED OR THE CONTRACTOR WILL PAY FOR THE FULL DAY. AT BID TIME. THE GATE GUARDS ARE PAID \$650.0 PER HOUR WITH 72 HOURS OR MORE NOTICE PRIOR TO WORK, \$80.00 PER HOUR WITH 24-72 HOURS NOTICE PRIOR TO WORK, AND \$125.00 PER HOUR WITH 24-72 HOURS NOTICE PRIOR TO WORK, AND \$125.00 PER HOUR WITH 24-72 HOURS NOTICE PRIOR TO WORK, AND \$125.00 PER HOUR WITH 24-70 NOTICE PRIOR TO WORK, HOWEVER THIS MAY BE SUBJECT TO CHANGE. ADDITIONALLY, \$439 PEN ADY TEE SHALL BE INCLUDED FOR THE ELECTRONIC INFORMATION DEVICE REEDED AT THE ACRE GUADE AOTE.
- 5. CONTRACTOR SHALL PROVIDE A 10' X 12' PORTABLE BUILDING AT ANY ACCESS GATE USED FOR GATE GUARDS USE WITH A PORTABLE GENERATOR AND LIGHT PLANT FOR NIGHT USE. THE PORTABLE BUILDING NEEDS TO HAVE FOWER, ADEQUATE HEATING/COOLING, LIGHTING, PORTABLE SANITATION UNIT, LIGHT PLANT, AND A POLE MOUNTED 24' DIAMETER CONVEX MIRROR FOR GUARDS TO VIEW INTO TRUCK BEDS. CONTRACTOR SHALL REMOVE AND RESTORE AREA AT PROJECT COMPLETION. THE CONTRACTOR IS RESPONSIBLE FOR ALL PERMITTING ASSOCIATED WITH ESTABLISHING THE GUARD SHACKS.
- 6. CONTRACTOR ACCESS SHALL BE ONLY SHOWN ON THIS SHEET THROUGH GATE P44T IF ALTERNATIVE 1 IS AWARDED AND GATE P45T IF ALTERNATIVE 2 OR 3 IS AWARDED. NO OTHER ACCESS POINTS SHALL BE ALLOWED UNLESS APPROVED BY THE DEN PROJECT MANAGER.
- ALL UTILITIES REQUIRED FOR THE CONTRACTOR'S STAGING AREA SHALL BE ARRANGED AND PAID FOR BY THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY OWNERS TO PROVIDE THE REQUIRED UTILITIES FOR THE PROJECT.
- THE STAGING AREA SHALL BE RESTORED TO ITS ORIGINAL CONDITION UPON COMPLETION OF THE PROJECT. THE COST OF THIS RESTORATION SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.
- 9. CRUSHED CLASS 6 CDOT MATERIAL MAY BE OBTAINED FROM THE DEN RECYCLE YARD AT NO COST TO THE CONTRACTOR.
- 10. THE CONTRACTOR SHALL CONTRACT DIRECTLY WITH RECYCLE MATERIALS INC. FOR FEES ASSOCIATED WITH THE REQUIRED DISPOSAL OF MATERIALS. DISPOSAL OPERATIONS WILL BE RESTRICTED TO DAYLIGHT HOURS.
- THE CONTRACTOR SHALL COORDINATE BORROW OPERATIONS WITH OTHER PROJECT CONTRACTORS AND THE DEN PROJECT MANAGER TO ENSURE NO CONFLICTS IN OPERATIONS EXIST.
- 12. CONSTRUCTION EQUIPMENT BOOM HEIGHT AT THE BORROW SITE AND WORK AREA 7 SHALL BE LIMITED TO A HEIGHT OF 20 FT. SAFETY FLAGS (ORANGE/WHITE FLAG) SHALL BE PROMINENTLY DISPLAYED ABOVE THE ROOFLINE ON ALL EQUIPMENT.
- FULL-TIME PRESENCE OF A WATER TRUCK WITH HOSE ATTACHMENT SHALL BE PROVIDED TO MITIGATE DUST AT THE BORROW SITE, THE BORROW HAUL ROUTE DURING BORROW OPERATIONS, AND WORK AREA 7.
- 14. SEE SHEET C316 FOR BORROW AREA ACCESS AND VEHICLE TRACKING PAD.

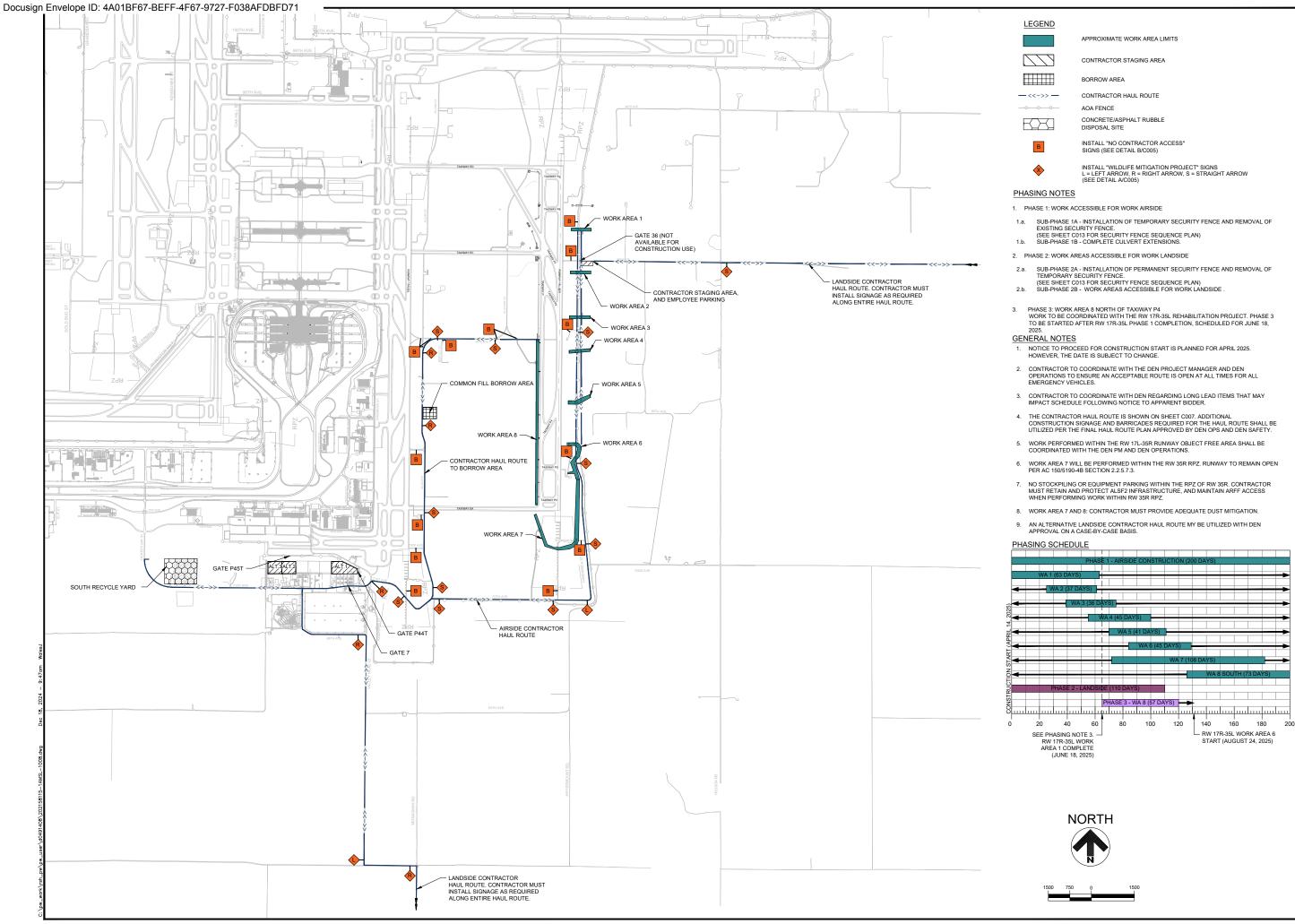
15. LANDSIDE CONTRACTOR HAUL ROUTE: EAST ON 71ST AVE TO ROBERTSDALE ST. SOUTH TO 68TH AVE. EAST TO VALLEY HEAD ST. SOUTH TO 68TH AVE. EAST TO MONAGHAN RD. SOUTH TO 28TH AVE. WEST TO POWHATON RD. SOUTH TO 1-70 EAST ON COLFAX AVE. NORTH TO 1-70 EAST ON COLFAX AVE. EAST TO IMBODEN RD. NORTH TO 88TH AVE. WEST TO STAGING AREA/EMPLOYEE PARKING

16. AN ALTERNATIVE LANDSIDE CONTRACTOR HAUL ROUTE MAY BE UTILIZED WITH DEN APPROVAL ON A CASE-BY-CASE BASIS.



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| RSSALE AS INDICATED<br>DATE DECEMBER 20, 2024<br>DRAWN BY: JAC<br>SCALE AS INDICATED<br>DATE DECEMBER 20, 2024<br>DRAWN BY: JAC<br>DECEMBER 20, 2024<br>DRAWN BY: JAC<br>DESIGN CONTRACT NO.<br>202158115<br>CONST. CONTRACT NO.<br>2022158115<br>CONST.  | State Constant   |
| RSSALE AS INDICATED<br>DATE DECEMBER 20, 2024<br>DRAWN BY: JAC<br>SCALE AS INDICATED<br>DATE DECEMBER 20, 2024<br>DRAWN BY: JAC<br>DECEMBER 20, 2024<br>DRAWN BY: JAC<br>DESIGN CONTRACT NO.<br>202158115<br>CONST. CONTRACT NO.<br>2022158115<br>CONST.  | 12/30/2024   |
| ALLE AS INDICATED<br>DATE DECEMBER 20, 2024<br>DRAWN BY: JAC<br>SCALE AS INDICATED<br>DATE DECEMBER 20, 2024<br>DRAWN BY: JAC<br>DATE DECEMBER 20, 2024<br>DRAWN BY: JAC<br>CHECKED BY: JAC<br>TRANP NO: JAC<br>DECEMBER 20, 2024<br>DRAWN BY: JAC<br>CHECKED BY: JAC<br>TRANP NO: JAC<br>CHECKED BY: JAC<br>TRANP NO: JAC<br>DESIGN CONTRACT NO.<br>DESIGN CONTRACT   | Sional English   |
| ALLE AS INDICATED<br>DATE DECEMBER 20, 2024<br>DRAWN BY: JAC<br>SCALE AS INDICATED<br>DATE DECEMBER 20, 2024<br>DRAWN BY: JAC<br>DATE DECEMBER 20, 2024<br>DRAWN BY: JAC<br>CHECKED BY: JAC<br>TRANP NO: JAC<br>DECEMBER 20, 2024<br>DRAWN BY: JAC<br>CHECKED BY: JAC<br>TRANP NO: JAC<br>CHECKED BY: JAC<br>TRANP NO: JAC<br>DESIGN CONTRACT NO.<br>DESIGN CONTRACT   | RS&H   |
| ALLE AS INDICATED<br>DATE DECEMBER 20, 2024<br>DRAWN BY: JAC<br>SCALE AS INDICATED<br>DATE DECEMBER 20, 2024<br>DRAWN BY: JAC<br>DATE DECEMBER 20, 2024<br>DRAWN BY: JAC<br>CHECKED BY: JAC<br>TRANP NO: JAC<br>DECEMBER 20, 2024<br>DRAWN BY: JAC<br>CHECKED BY: JAC<br>TRANP NO: JAC<br>CHECKED BY: JAC<br>TRANP NO: JAC<br>DESIGN CONTRACT NO.<br>DESIGN CONTRACT   |  |
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| ATE DECEMBER 20, 2024<br>SCALE AS INDICATED<br>DATE DECEMBER 20, 2024<br>DRAWN BY: JAC<br>FAA AIP NO: JAC<br>CHECKED BY: JAC<br>FAA AIP NO: JAC<br>CONST. CONTRACT NO.<br>202476290<br>VOLUME NO.<br>SHEET TITLE<br>CONTRACT<br>LAYOUT PLAN<br>SHEET NO.<br>CO07  | PH/<br>PH/   |
| ATE CONTRACT NO. 202158115<br>CONST. CONTRACT NO. 202158115<br>CONST. CONTRACT NO. 202176290<br>VOLUME NO. SHEET TITLE<br>CONTRACT<br>LAYOUT PLAN   |  |
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| SHEET TITLE CONTRACT LAYOUT PLAN SHEET NO. CO07   |  |
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| SCALE SCALE AS INDICATED DATE DECEMBER 20, 2024 DRAWN BY: JAC CHECKED BY: JAC FAA AIP NO: 3-08-0086-137-2025 WORK BREAKDOWN NO. DESIGN CONTRACT NO. 202158115 CONST. CONTRACT NO. 202476290 VOLUME NO. SHEET TITLE CONTRACT LAYOUT PLAN SHEET NO. C007  |  |
| AS INDICATED<br>DATE<br>DECEMBER 20, 2024<br>DRAWN BY:<br>JAC<br>CHECKED BY:<br>JAC<br>FAA AIP NO:<br>3-08-0086-137-2025<br>WORK BREAKDOWN NO.<br>DESIGN CONTRACT NO.<br>202158115<br>CONST. CONTRACT NO.<br>202476290<br>VOLUME NO.<br>SHEET TITLE<br>CONTRACT<br>LAYOUT PLAN<br>SHEET NO.<br>CO07   |  |
| DATE<br>DECEMBER 20, 2024<br>DRAWN BY:<br>JAC<br>CHECKED BY:<br>JAC<br>FAA AIP NO:<br>3-08-0086-137-2025<br>WORK BREAKDOWN NO.<br>DESIGN CONTRACT NO.<br>202158115<br>CONST. CONTRACT NO.<br>202476290<br>VOLUME NO.<br>SHEET TITLE<br>CONTRACT<br>LAYOUT PLAN<br>SHEET NO.<br>C007   | SCALE  |
| DRAWN BY: JAC<br>CHECKED BY: JAC<br>FAA AIP NO: JAC<br>FAA AIP NO: 3-08-0086-137-2025<br>WORK BREAKDOWN NO.<br>DESIGN CONTRACT NO.<br>202158115<br>CONST. CONTRACT NO.<br>202476290<br>VOLUME NO.<br>SHEET TITLE<br>CONTRACT<br>LAYOUT PLAN<br>SHEET NO.<br>C007  | DATE   |
| JAC<br>FAA AIP NO:<br>3-08-0086-137-2025<br>WORK BREAKDOWN NO.<br>DESIGN CONTRACT NO.<br>202158115<br>CONST. CONTRACT NO.<br>202476290<br>VOLUME NO.<br>SHEET TITLE<br>CONTRACT<br>LAYOUT PLAN<br>SHEET NO.<br>C007   | DRAWN BY:<br>JAC   |
| 3-08-0086-137-2025<br>WORK BREAKDOWN NO.<br>DESIGN CONTRACT NO.<br>202158115<br>CONST. CONTRACT NO.<br>202476290<br>VOLUME NO.<br>SHEET TITLE<br>CONTRACT<br>LAYOUT PLAN<br>SHEET NO.<br>CO07   | JAC  |
| DESIGN CONTRACT NO.<br>202158115<br>CONST. CONTRACT NO.<br>202476290<br>VOLUME NO.<br>SHEET TITLE<br>CONTRACT<br>LAYOUT PLAN<br>SHEET NO.<br>CO07   | 3-08-0086-137-2025   |
| 202158115<br>CONST. CONTRACT NO.<br>202476290<br>VOLUME NO.<br>SHEET TITLE<br>CONTRACT<br>LAYOUT PLAN<br>SHEET NO.<br>C007  |  |
| SHEET TITLE<br>CONTRACT<br>LAYOUT PLAN<br>SHEET NO.<br>C007   | 202158115<br>CONST. CONTRACT NO.   |
| CONTRACT<br>LAYOUT PLAN<br>SHEET NO.<br>C007  | 202476290  |
| LAYOUT PLAN<br>SHEET NO.<br>C007  | SHEET TITLE  |
| C007  |  |
|   | C007   |

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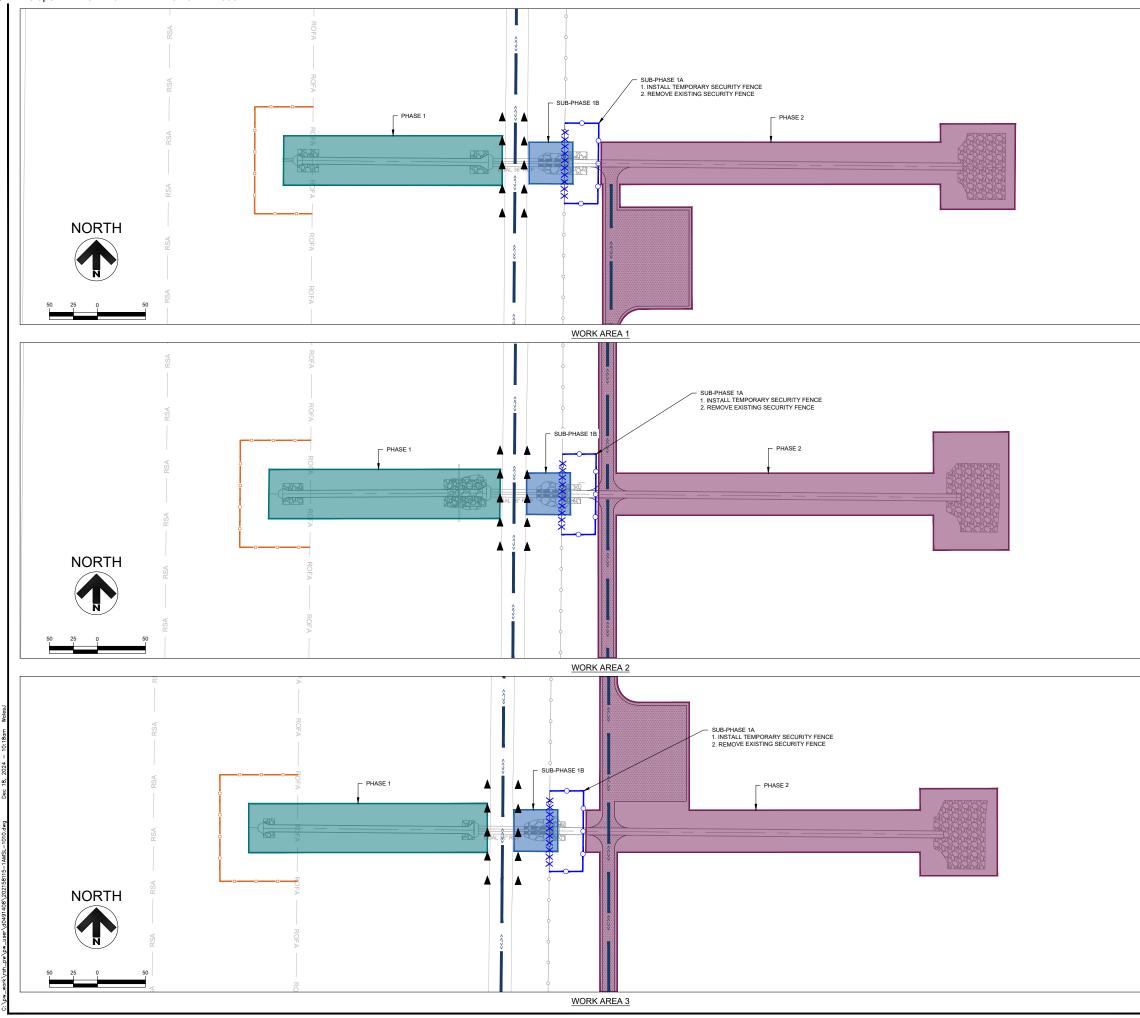


| CITY & COUNTY<br>of DENVER                                  |
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| DENVER<br>INTERNATIONAL<br>AIRPORT                          |
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| DESIGNER OF RECORD  |
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| AS INDICATED DATE DECEMBER 20, 2024                         |
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| JAC<br>FAA AIP NO:<br>3-08-0086-137-2025                    |
| WORK BREAKDOWN NO.<br>DESIGN CONTRACT NO.<br>202158115      |
| 202156113<br>CONST. CONTRACT NO.<br>202476290<br>VOLUME NO. |
| SHEET TITLE   |
| OVERALL PHASING<br>PLAN                                     |
| SHEET NO.   |

SHEET 009 OF 133

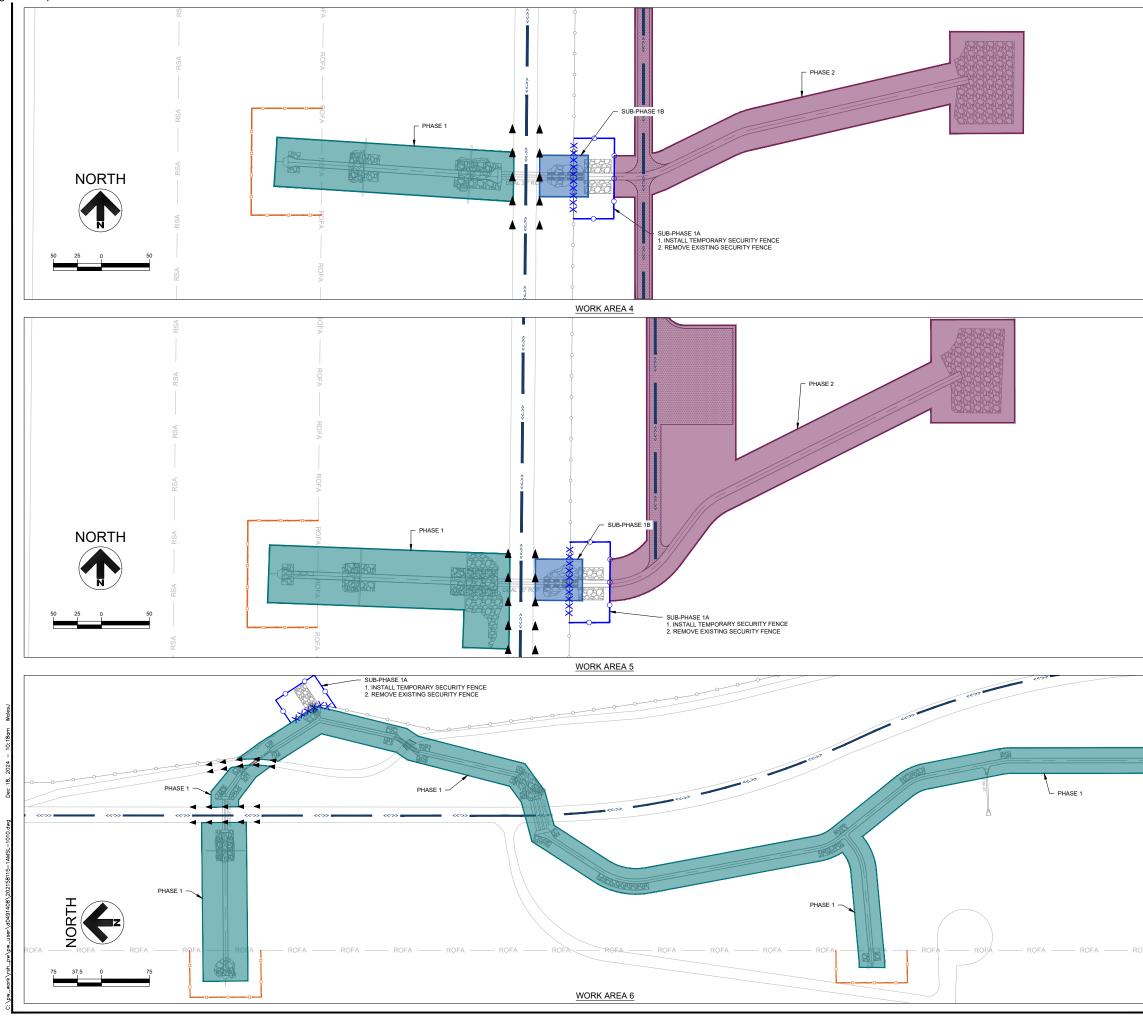
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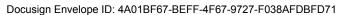
|   |          | LEGEND  |   | CITY & COUNTY                          |
|---|----------|---|---|--|
|   |          |   | PHASE 1   | of DENVER                              |
|   |          |   | PHASE 2   | DENVER<br>INTERNATIONAL                |
|   |          |   | PHASE 3   | AIRPORT                                |
|   |          |   | SUB-PHASE 1B  | ACOUNTS.                               |
|   |          | <<->>   | CONTRACTOR HAUL ROUTE   |  |
|   | _        | o   | AOA FENCE   |  |
|   |          | -00   | TEMPORARY AOA FENCE (SEE SHEET C261)  |  |
|   |          |   | TEMPORARY CONSTRUCTION SNOW FENCING   | SEAL S                                 |
|   |          | <b>A</b>  | CANDLESTICKS (SEE DETAIL F, SHEET C005)   |  |
|   | •        |   | LOW PROFILE BARRICADES  | DESIGNER OF RECORD                     |
|   |          | ASING NOTES   |   | SADO LICEN                             |
|   | 1.<br>1. |   | TION OF TEMPORARY SECURITY FENCE AND  | S S FREDO S                            |
|   | 1.       | (SEE SHEET C  | EXISTING SECURITY FENCE.<br>D13 FOR SECURITY FENCE SEQUENCE PLAN)<br>E CULVERT EXTENSIONS.  | 51716                                  |
|   | 3.       | WORK AREA 8 SOU                                       | ITH SHALL BE REDUCED TO ADG III AIRCRAFT  | 12/30/2024                             |
|   | 4.       | OPERATIONS<br>TEMPORARY AOA S                         | SECURITY FENCING SHALL BE INSTALLED AND   | CONSTRACTOR                            |
|   | ч.       | APPROVED BY DEM<br>SECURITY FENCE.                    | V SECURITY PRIOR TO REMOVING EXISTING AOA<br>THIS WORK SHALL BE COMPLETED FOR EACH<br>EA DURING PHASE 1.  | DCcL                                   |
|   | 5.       | CONTRACTOR TO   | COORDINATE WITH THE DEN PROJECT MANAGER   |  |
|   |          |   | ONS TO ENSURE AN ACCEPTABLE ROUTE IS OPEN AT<br>. EMERGENCY VEHICLES.   |  |
| _ | 6.       |   | HAUL ROUTE IS SHOWN ON SHEET C007.<br>TRUCTION SIGNAGE AND BARRICADES REQUIRED  |  |
|   |          | FOR THE HAUL RO                                       | UTE SHALL BE UTILIZED PER THE FINAL HAUL ROUTE  |  |
|   |          | SIGNAGE OR BARR                                       | Y DEN OPS AND DEN SAFETY. ANY ADDITIONAL<br>ICADES THAN THOSE SHOWN IN THE PLANS WILL BE  | $\sim \cap \square$                    |
|   | _        |   | DENTAL TO THE PROJECT.  |  |
|   | 7.       | TO REMAIN OPEN F                                      | BE PERFORMED WITHIN THE RW 35R RPZ. RUNWAY<br>PER AC 150/5190-4B SECTION 2.2.5.7.3.   |  |
|   | 8.       | CONTRACTOR MUS  | OR EQUIPMENT PARKING WITHIN THE RP2 OF RW 35R.<br>ST RETAIN AND PROTECT ALSF2 INFRASTRUCTURE,<br>F ACCESS WHEN PERFORMING WORK WITHIN THE                             |  |
|   | 9.       |   | T PROVIDE THE FULL-TIME PRESENCE OF A WATER   | ∣≻шZ≸                                  |
|   |          | MITIGATION AT THE<br>BORROW OPERATI<br>EQUIPMENT BOOM | ATTACHMENT TO PROVIDE ADEQUATE DUST<br>E BORROW SITE, THE BORROW HAUL ROUTE DURING<br>ONS, AND WORK AREA 7. CONSTRUCTION<br>HEIGHT AT THE BORROW SITE AND WORK AREA 7 |  |
|   |          | FLAGS (ORANGE/W                                       | TO A HEIGHT OF 20 FT. ADDITIONALLY, SAFETY<br>HITE FLAG) SHALL BE PROMINENTLY DISPLAYED<br>INE ON ALL EQUIPMENT.  |  |
|   | 10.      | LOCALIZER CRITIC                                      | LEE IN CLOSE PROXIMITY TO THE RUNWAY<br>AL AREA, RSA & ROFA. CONTINUOUS BARRICADES<br>TO KEEP CONSTRUCTION PERSONNEL/EQUIPMENT<br>DTECTED AREAS.                      |  |
|   | HA       | AUL ROUTE NO  |   |  |
|   | 1.       | THE CONTRACTOR<br>ACCESS GATE P45                     | <br>SHALL ACCESS THE SITE THROUGH THE APPROVED<br>T. NO OTHER ACCESS POINTS SHALL BE ALLOWED<br>D BY THE DEN PROJECT MANAGER.   | ISSUE RECORD<br>NO. BY PURPOSE DATE CH |
|   | 2.       |   | HAUL ROUTE IS SHOWN IN ITS ENTIRETY ON SHEET  |  |
|   | 3.       |   | LL HAVE AN INITIAL SAFETY MEETING PRIOR TO THE  |  |
|   |          | ONSET OF EACH W<br>SHALL BE PRESEN                    | ORK AREA. ALL PERSONNEL UTILIZING HAUL ROUTES<br>T.   |  |
|   | 4.       |   | LL HOLD WEEKLY SAFETY BRIEFINGS TO DISCUSS<br>RTAINING TO THE HAUL ROUTES.  |  |
|   | 5.       |   | RUCTION SIGNAGE MUST ABIDE LOCAL  |  |
|   |          |   |   |  |
|   |          |   |   | SCALE                                  |
|   |          |   |   | AS INDICATED                           |
|   |          |   |   | DATE<br>DECEMBER 20, 2024              |
|   |          |   |   | DRAWN BY:<br>JEW                       |
|   |          |   |   | CHECKED BY:                            |
|   |          |   |   | JAC<br>FAA AIP NO:                     |
|   |          |   |   | 3-08-0086-137-2025                     |
|   |          |   |   | WORK BREAKDOWN NO.                     |
|   |          |   |   | 202158115<br>CONST. CONTRACT NO.       |
|   |          |   |   | 202476290<br>VOLUME NO.                |
|   |          |   |   | SHEET TITLE                            |
|   |          |   |   | PHASING PLAN -                         |
|   |          |   |   | PHASE 1<br>(SHEET 1 OF 3)              |
|   |          |   |   | (                                      |

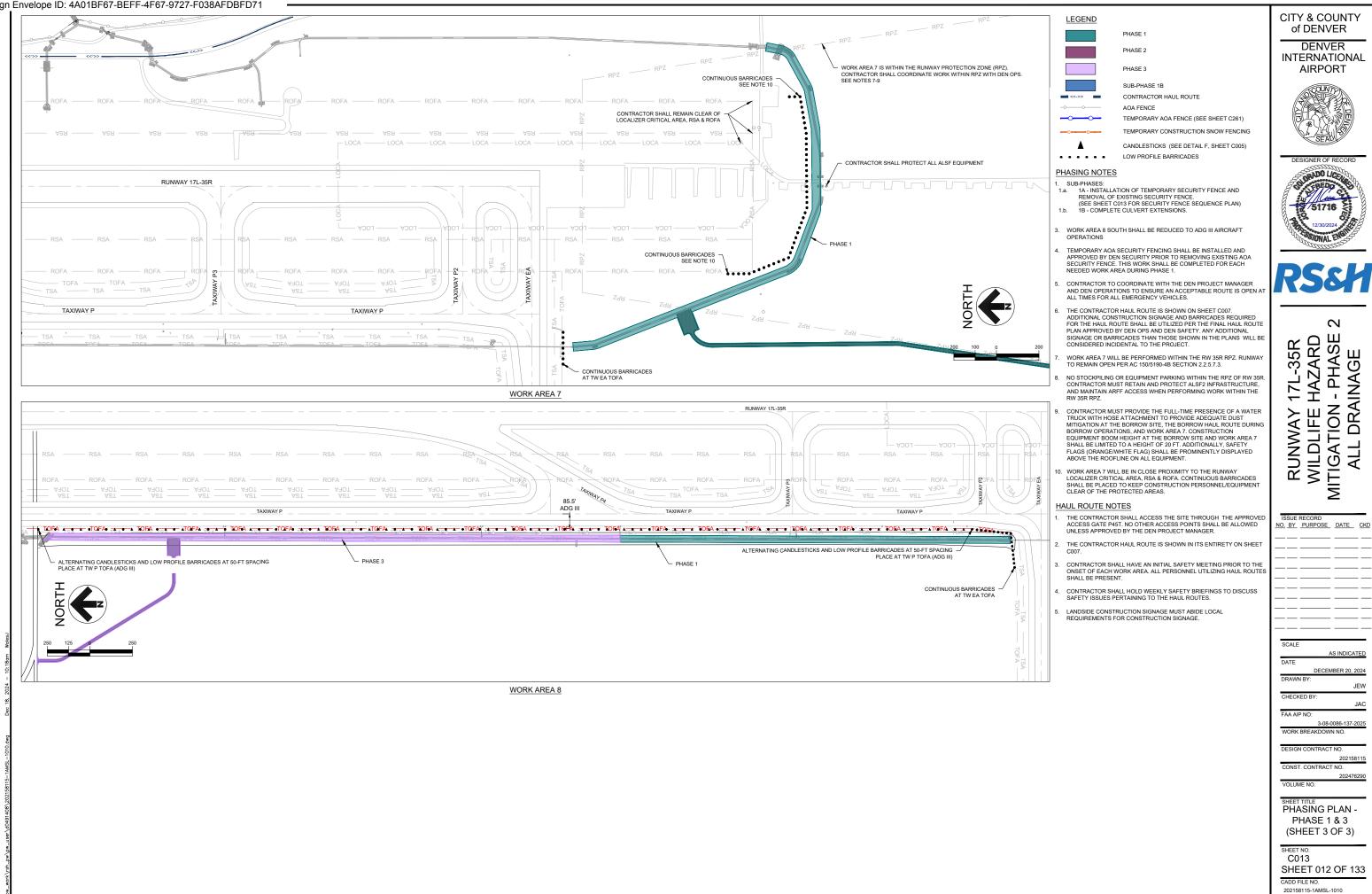
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| SHEET 010 OF  | 133 |
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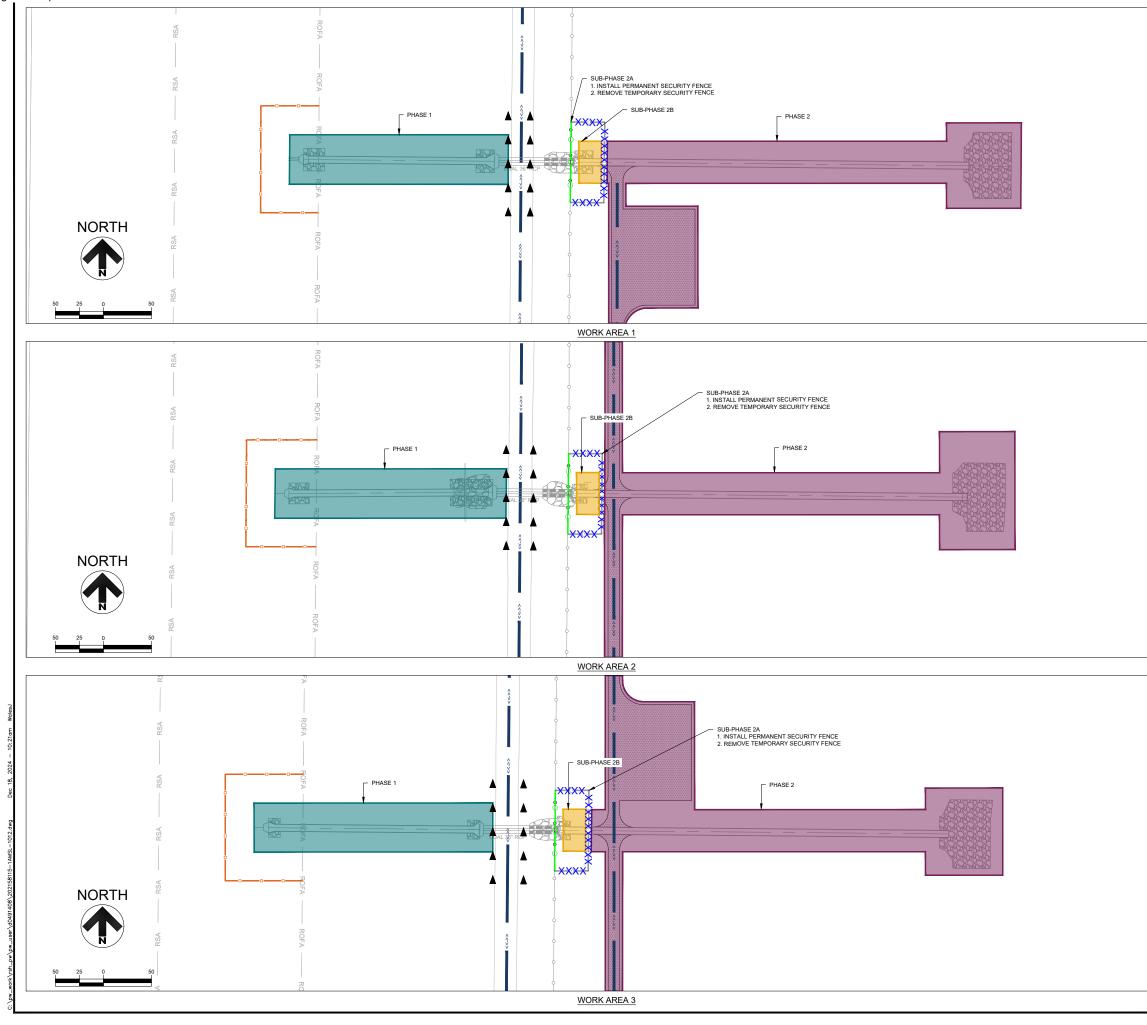


|                  | LEGEND   | PHASE 1  |                   | ' & COUNTY<br>DENVER                   |
|------------------|--|--|-------------------|--|
|                  |  | PHASE 2  |                   | DENVER<br>ERNATIONAL                   |
|                  |  | PHASE 3  |                   | AIRPORT                                |
|                  | ·  | SUB-PHASE 1B<br>CONTRACTOR HAUL ROUTE<br>AOA FENCE   | X                 |  |
| -                |  | TEMPORARY AOA FENCE (SEE SHEET C261)<br>TEMPORARY CONSTRUCTION SNOW FENCING  | CIT               |  |
|                  | <b>A</b>   | CANDLESTICKS (SEE DETAIL F, SHEET C005)<br>LOW PROFILE BARRICADES  | DEG               |  |
| PH               | ASING NOTES  |  | DES               |  |
| 1.<br>1.:<br>1.: | REMOVAL OF E<br>(SEE SHEET CO  | ION OF TEMPORARY SECURITY FENCE AND<br>XISTING SECURITY FENCE.<br>13 FOR SECURITY FENCE SEQUENCE PLAN)<br>CULVERT EXTENSIONS.  |                   | 51716                                  |
| 3.               | WORK AREA 8 SOU<br>OPERATIONS  | TH SHALL BE REDUCED TO ADG III AIRCRAFT  | Sec.              | 12/30/2024                             |
| 4.               | APPROVED BY DEN<br>SECURITY FENCE.   | ECURITY FENCING SHALL BE INSTALLED AND<br>SECURITY PRIOR TO REMOVING EXISTING AOA<br>HIS WORK SHALL BE COMPLETED FOR EACH<br>EA DURING PHASE 1.  |                   | CCL                                    |
| 5.               | AND DEN OPERATIO   | CORDINATE WITH THE DEN PROJECT MANAGER<br>DNS TO ENSURE AN ACCEPTABLE ROUTE IS OPEN AT<br>EMERGENCY VEHICLES.  |                   | Soli                                   |
| 6.               | ADDITIONAL CONST<br>FOR THE HAUL ROU<br>PLAN APPROVED B<br>SIGNAGE OR BARR                                       | HAUL ROUTE IS SHOWN ON SHEET C007.<br>RUCTION SIGNAGE AND BARRICADES REQUIRED<br>ITE SHALL BE UTILIZED PER THE FINAL HAUL ROUTE<br>Y DEN OPS AND DEN SAFETY. ANY ADDITIONAL<br>CADES THAN THOSE SHOWN IN THE PLANS WILL BE<br>ENTAL TO THE PROJECT.  | 2                 | SE 2                                   |
| 7.               |  | BE PERFORMED WITHIN THE RW 35R RPZ. RUNWAY<br>ER AC 150/5190-4B SECTION 2.2.5.7.3.   | 35                | A<br>A<br>Ω<br>A<br>β<br>A<br>β        |
| 8.               | CONTRACTOR MUS   | R EQUIPMENT PARKING WITHIN THE RPZ OF RW 35R.<br>T RETAIN AND PROTECT ALSF2 INFRASTRUCTURE,<br>F ACCESS WHEN PERFORMING WORK WITHIN THE  | 17L-              | HAZ<br>- PF                            |
| 9.               | TRUCK WITH HOSE<br>MITIGATION AT THE<br>BORROW OPERATIO<br>EQUIPMENT BOOM<br>SHALL BE LIMITED<br>FLAGS (ORANGE/W | T PROVIDE THE FULL-TIME PRESENCE OF A WATER<br>ATTACHMENT TO PROVIDE ADEQUATE DUST<br>BORROW STIE, THE BORROW HAUL ROUTE DURING<br>DNS, AND WORK AREA 7. CONSTRUCTION<br>HEIGHT AT THE BORROW SITE AND WORK AREA 7<br>TO A HEIGHT OF 20 FT. ADDITIONALLY, SAFETY<br>HITE FLAG) SHALL BE PROMINENTLY DISPLAYED<br>INE ON ALL EQUIPMENT. | ληνη              | LDLIFE<br>GATION                       |
| 10.              | LOCALIZER CRITICA  | BE IN CLOSE PROXIMITY TO THE RUNWAY<br>L AREA, RSA & ROFA. CONTINUOUS BARRICADES<br>TO KEEP CONSTRUCTION PERSONNEL/EQUIPMENT<br>TECTED AREAS.  | א                 |  |
| _                | AUL ROUTE NOT  |  |                   |  |
| 1.               | ACCESS GATE P45  | SHALL ACCESS THE SITE THROUGH THE APPROVED<br>T. NO OTHER ACCESS POINTS SHALL BE ALLOWED<br>DBY THE DEN PROJECT MANAGER.   | ISSUE R<br>NO. BY | ECORD<br>PURPOSE DATE CKD              |
| 2.               | THE CONTRACTOR<br>C007.  | HAUL ROUTE IS SHOWN IN ITS ENTIRETY ON SHEET   |                   |  |
| 3.               |  | LI HAVE AN INITIAL SAFETY MEETING PRIOR TO THE<br>ORK AREA. ALL PERSONNEL UTILIZING HAUL ROUTES  |                   |  |
| <br>4.           |  | LL HOLD WEEKLY SAFETY BRIEFINGS TO DISCUSS<br>RTAINING TO THE HAUL ROUTES.   |                   |  |
| 5.               |  | UCTION SIGNAGE MUST ABIDE LOCAL<br>R CONSTRUCTION SIGNAGE.   |                   |  |
|                  |  |  | SCALE             |  |
|                  |  |  | DATE              | AS INDICATED                           |
|                  |  |  | DRAWN             |  |
|                  |  |  | CHECKE            |  |
|                  |  |  | FAA AIP           |  |
|                  |  |  | WORK E            | 3-08-0086-137-2025<br>BREAKDOWN NO.    |
|                  |  |  | DESIGN            | CONTRACT NO.                           |
|                  |  |  | CONST.            | 202158115<br>CONTRACT NO.<br>202476290 |
|                  |  |  | VOLUM             | E NO.                                  |
|                  |  |  | 1                 | SING PLAN -<br>PHASE 1<br>EET 2 OF 3)  |
|                  |  |  | SHEET N           | NO.<br>12                              |
|                  |  |  | SHE               | ET 011 OF 133                          |

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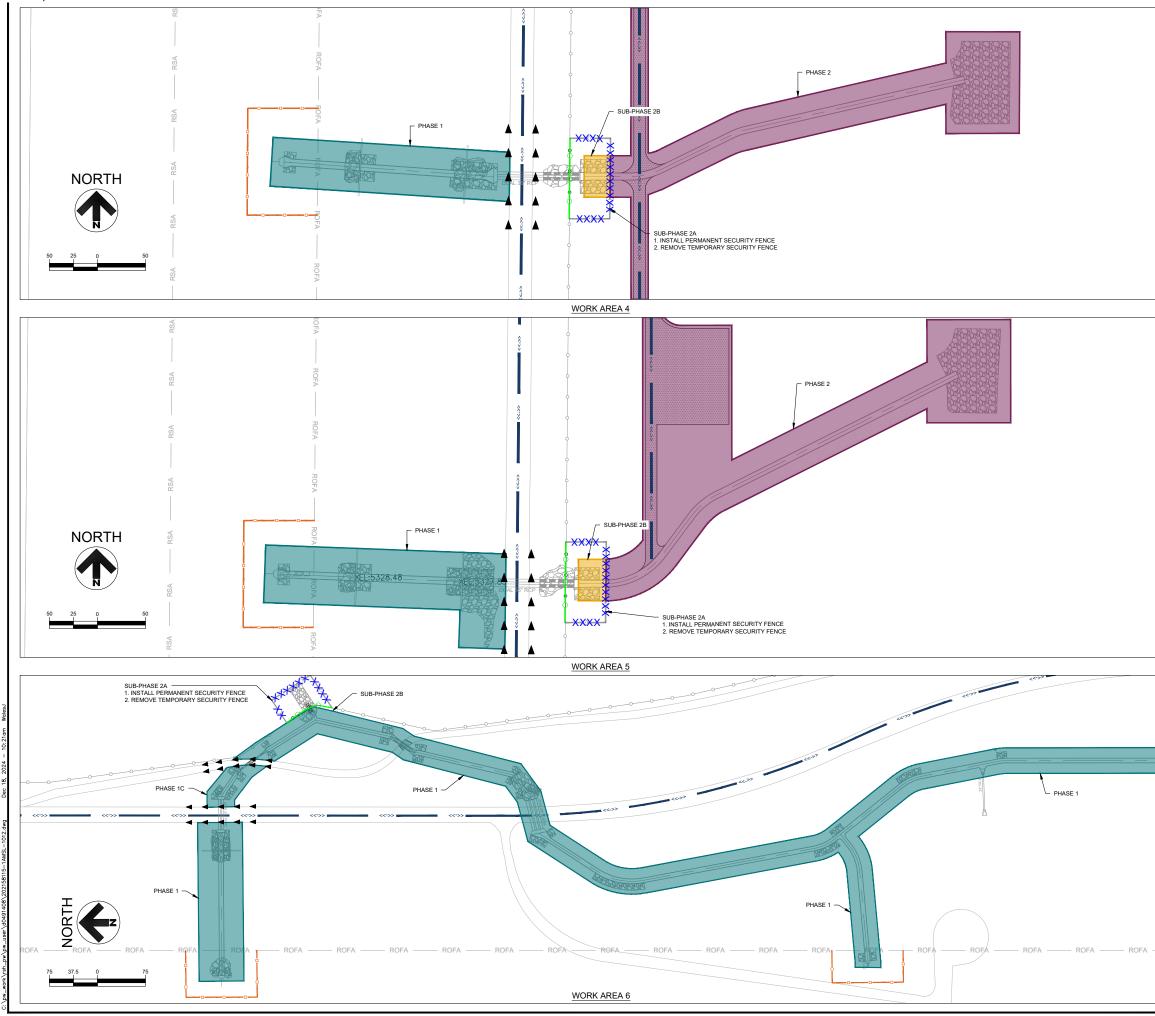






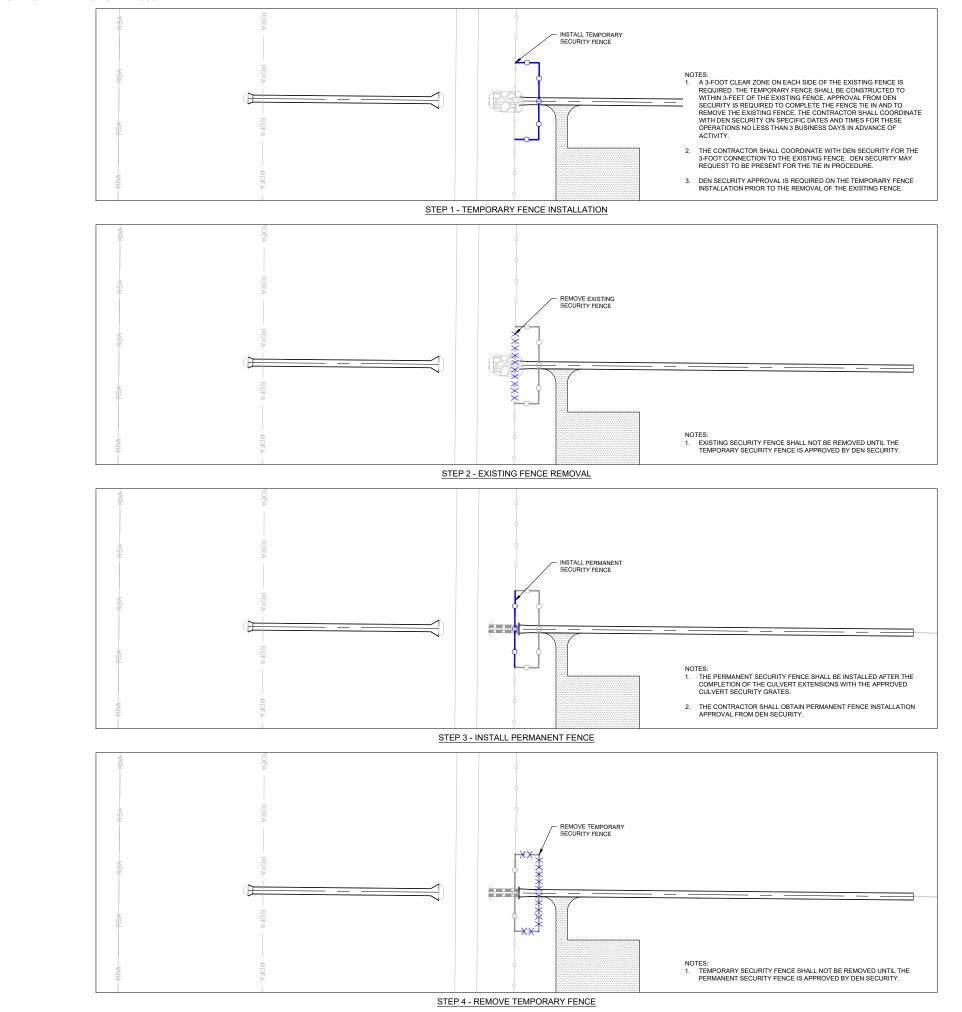
| LEGEND  | CITY & COUNTY<br>of DENVER              |
|---|---|
| PHASE 1<br>PHASE 2  | DENVER<br>INTERNATIONAL                 |
| SUB-PHASE 2B  | AIRPORT                                 |
| CONTRACTOR HAUL ROUTE   | ACOUNTS                                 |
| -oo AOA FENCE   |   |
| PERMANENT AOA FENCE (SEE SHEET C260)  |   |
| TEMPORARY CONSTRUCTION SNOW FENCING   | C. LANS                                 |
| CANDLESTICKS (SEE DETAIL F, SHEET C005)     LOW PROFILE BARRICADES  | SEAD                                    |
| PHASING NOTES   | DESIGNER OF RECORD                      |
| 1. SUB-PHASES:  | S RADO LICEN                            |
| 1.a.       SUB-PHASE 2A - INSTALLATION OF PERMANENT SECURITY FENCE<br>AND REMOVAL OF TEMPORARY SECURITY FENCE.         (SEE SHEET C013 FOR SECURITY FENCE SEQUENCE PLAN)         1.b.       SUB-PHASE 2B - WORK AREAS ACCESSIBLE FOR WORK LANDSIDE<br>FOLLOWING TEMPORARY FENCE REMOVAL.  | 51716                                   |
| <ol> <li>TEMPORARY AGA SECURITY FENCING SHALL BE INSTALLED AND<br/>APPROVED BY DEN SECURITY PRIOR TO REMOVING EXISTING AGA<br/>SECURITY FENCE. THIS WORK SHALL BE COMPLETED FOR EACH<br/>NEEDED WORK AREA.</li> </ol>   | 12/30/2024                              |
| <ol> <li>CONTRACTOR TO COORDINATE WITH THE DEN PROJECT MANAGER<br/>AND DEN OPERATIONS TO ENSURE AN ACCEPTABLE ROUTE IS OPEN AT<br/>ALL TIMES FOR ALL EMERGENCY VEHICLES.</li> </ol>   | DCcH                                    |
| 4. THE CONTRACTOR HAUL ROUTE IS SHOWN ON SHEET COO7.<br>ADDITIONAL CONSTRUCTION SIGNAGE AND BARRICADES REQUIRED<br>FOR THE HAUL ROUTE SHALL BE UTILIZED PER THE FINAL HAUL ROUTE<br>PLAN APPROVED BY DEN OPS AND DEN SAFETY. ANY ADDITIONAL<br>SIGNAGE OR BARRICADES THAN THOSE SHOWN IN THE PLANS WILL BE<br>CONSIDERED INCIDENTAL TO THE PROJECT. |   |
| 5. CONTRACTOR MUST PROVIDE ADEQUATE DUST MITIGATION FOR THE<br>DURATION OF THE PROJECT.   |   |
| HAUL ROUTE NOTES  1. THE CONTRACTOR SHALL ACCESS THE SITE THROUGH THE APPROVED ACCESS GATE P45T. NO OTHER ACCESS POINTS SHALL BE ALLOWED  | -35F<br>ZAR<br>HAS<br>GE                |
| UNLESS APPROVED BY THE DEN PROJECT MANAGER. 2. THE CONTRACTOR HAUL ROUTE IS SHOWN IN ITS ENTIRETY ON SHEET C007.  | 17L<br>HAZ<br>INA                       |
| <ol> <li>CONTRACTOR SHALL HAVE AN INITIAL SAFETY MEETING PRIOR TO THE<br/>ONSET OF EACH WORK AREA. ALL PERSONNEL UTILIZING HAUL ROUTES<br/>SHALL BE PRESENT.</li> </ol>   | A<br>ON<br>NRA                          |
| <ol> <li>CONTRACTOR SHALL HOLD WEEKLY SAFETY BRIEFINGS TO DISCUSS<br/>SAFETY ISSUES PERTAINING TO THE HAUL ROUTES.</li> </ol>   |   |
| <ol> <li>LANDSIDE CONSTRUCTION SIGNAGE MUST ABIDE LOCAL<br/>REQUIREMENTS FOR CONSTRUCTION SIGNAGE.</li> </ol>   | AL<br>AL<br>AL                          |
|   | Σ                                       |
|   | ISSUE RECORD<br>NO. BY PURPOSE DATE CKD |
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|   | SCALE                                   |
|   | AS INDICATED                            |
|   | DECEMBER 20, 2024                       |
|   | DRAWN BY:<br>JEW                        |
|   | CHECKED BY:<br>JAC                      |
|   | FAA AIP NO:<br>3-08-0086-137-2025       |
|   | WORK BREAKDOWN NO.                      |
|   | DESIGN CONTRACT NO.                     |
|   | 202158115<br>CONST. CONTRACT NO.        |
|   | 202476290<br>VOLUME NO.                 |
|   | SHEET TITLE<br>PHASING PLAN -           |
|   | PHASE 2<br>(SHEET 1 OF 2)               |
|   | SHEET NO.<br>C014                       |
|   | SHEET 013 OF 133                        |

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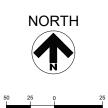
| LEGEND                               |  | CITY & COUNTY<br>of DENVER   |
|--------------------------------------|--|--|
|                                      | PHASE 1  | DENVER   |
|                                      | PHASE 2  | INTERNATIONAL  |
|                                      | SUB-PHASE 2B   | AIRPORT  |
| <b>•••</b> <<->> <b>•••</b>          | CONTRACTOR HAUL ROUTE  | COUNTER  |
| -00                                  | AOA FENCE  |  |
| -00                                  | PERMANENT AOA FENCE (SEE SHEET C260)   |  |
|                                      | TEMPORARY CONSTRUCTION SNOW FENCING  | O BE YANKE   |
|                                      | CANDLESTICKS (SEE DETAIL F, SHEET C005)  | SFALL 8  |
|                                      | LOW PROFILE BARRICADES   |  |
| PHASING NOTES                        |  | DESIGNER OF RECORD   |
| 1. SUB-PHASES:                       |  | SANDO LICEN  |
| AND REMOVAL                          | - INSTALLATION OF PERMANENT SECURITY FENCE<br>OF TEMPORARY SECURITY FENCE.   | SALEBEDO UN  |
|                                      | 13 FOR SECURITY FENCE SEQUENCE PLAN)<br>- WORK AREAS ACCESSIBLE FOR WORK LANDSIDE  | 8 Million to 8   |
|                                      | MPORARY FENCE REMOVAL.   | 51716  |
| APPROVED BY DEN                      | ECURITY FENCING SHALL BE INSTALLED AND<br>SECURITY PRIOR TO REMOVING EXISTING AOA<br>THIS WORK SHALL BE COMPLETED FOR EACH | 12/30/2024   |
|                                      | COORDINATE WITH THE DEN PROJECT MANAGER  | Wassesses  |
| ALL TIMES FOR ALL                    | DNS TO ENSURE AN ACCEPTABLE ROUTE IS OPEN AT<br>EMERGENCY VEHICLES.<br>HAUL ROUTE IS SHOWN ON SHEET C007.                  | <b>DCs</b> <i>H</i>  |
| ADDITIONAL CONST                     | RUCTION SIGNAGE AND BARRICADES REQUIRED  | <b>NOCI</b>  |
| PLAN APPROVED B                      | JTE SHALL BE UTILIZED PER THE FINAL HAUL ROUTE<br>Y DEN OPS AND DEN SAFETY. ANY ADDITIONAL                                 |  |
|                                      | ICADES THAN THOSE SHOWN IN THE PLANS WILL BE<br>IENTAL TO THE PROJECT.   |  |
| 5. CONTRACTOR MUS<br>DURATION OF THE | T PROVIDE ADEQUATE DUST MITIGATION FOR THE PROJECT.  | 2  |
|                                      |  | R 2 2  |
| 1. THE CONTRACTOR                    | ES<br>SHALL ACCESS THE SITE THROUGH THE APPROVED   | С<br>Ч<br>Ч<br>С<br>С<br>С<br>С<br>С<br>С<br>С<br>С<br>С<br>С<br>С<br>С<br>С<br>С<br>С<br>С<br>С |
| ACCESS GATE P45                      | F. NO OTHER ACCESS POINTS SHALL BE ALLOWED   |  |
|                                      | D BY THE DEN PROJECT MANAGER.  | ┙┛┫┫   |
| 2. THE CONTRACTOR<br>C007.           | HAUL ROUTE IS SHOWN IN ITS ENTIRETY ON SHEET   | 12 I − 1   |
|                                      | LL HAVE AN INITIAL SAFETY MEETING PRIOR TO THE<br>ORK AREA. ALL PERSONNEL UTILIZING HAUL ROUTES                            | RA E K   |
| 4. CONTRACTOR SHA                    | LL HOLD WEEKLY SAFETY BRIEFINGS TO DISCUSS<br>RTAINING TO THE HAUL ROUTES.   |  |
| 5. LANDSIDE CONSTR                   | UCTION SIGNAGE MUST ABIDE LOCAL<br>DR CONSTRUCTION SIGNAGE.  | ALI<br>GA<br>UL  |
|                                      |  | IN T   |
|                                      |  | Σ  |
|                                      |  | ISSUE RECORD<br>NO. BY PURPOSE DATE CKD  |
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|                                      |  | SCALE<br>AS INDICATED  |
|                                      |  | DATE   |
|                                      |  | DECEMBER 20, 2024<br>DRAWN BY:   |
|                                      |  | JEW  |
|                                      |  | CHECKED BY:<br>JAC   |
|                                      |  | FAA AIP NO:  |
|                                      |  | 3-08-0086-137-2025<br>WORK BREAKDOWN NO.   |
|                                      |  | DESIGN CONTRACT NO.  |
|                                      |  | 202158115<br>CONST. CONTRACT NO.<br>202476200  |
|                                      |  | 202476290<br>VOLUME NO.  |
|                                      |  | SHEET TITLE<br>PHASING PLAN -  |
|                                      |  | PHASING PLAN -<br>PHASE 2  |
|                                      |  | (SHEET 2 OF 2)   |
|                                      |  | SHEET NO.  |
|                                      |  | C015   |
|                                      |  | SHEET 014 OF 133   |
|                                      |  | CADD FILE NO.  |

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#### NOTES

- 1. THIS SHEET INCLUDES THE TYPICAL FENCE INSTALLATION SEQUENCE TO BE FOLLOWED AT EACH DRAINAGE AREA.
- 2. THE CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION WITH DEN SECURITY DURING THE FENCE INSTALLATION PROCESS.
- IF THERE ARE ANY GAPS IN THE SECURITY FENCE, A SECURITY GUARD WILL BE REQUIRED UNTIL THE SECURITY FENCE OPENING IS SECURED AND APPROVED BY DEN SECURITY. THE SECURITY GUARD SHALL BE AN APPROVED DEN GATE GUARD AND BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- 4. A 3-FOOT CLEAR ZONE ON EACH SIDE OF THE SECURITY FENCE SHALL BE MAINTAINED PER DEN SECURITY REQUIREMENTS.





APPENDICES

<u>APPENDIX B</u>

## CONSTRUCTION DAILY SAFETY INSPECTION CHECKLIST

FAA Advisory Circular 150/5370-2G Appendix D

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#### APPENDIX D. CONSTRUCTION PROJECT DAILY SAFETY INSPECTION CHECKLIST

The situations identified below are potentially hazardous conditions that may occur during airport construction projects. Safety area encroachments, unauthorized and improper ground vehicle operations, and unmarked or uncovered holes and trenches near aircraft operating surfaces pose the most prevalent threats to airport operational safety during airport construction projects. The list below is one tool that the airport operator or contractor may use to aid in identifying and correcting potentially hazardous conditions. It should be customized as appropriate for each project including information such as the date, time and name of the person conducting the inspection.

| Item   | Action Required (Describe) | No Action<br>Required<br>(Check) |
|--|----------------------------|----------------------------------|
| Excavation adjacent to runways, taxiways, and aprons improperly backfilled.  |                            |                                  |
| Mounds of earth, construction materials,<br>temporary structures, and other obstacles<br>near any open runway, taxiway, or taxi<br>lane; in the related Object Free area and<br>aircraft approach or departure areas/zones;<br>or obstructing any sign or marking.   |                            |                                  |
| Runway resurfacing projects resulting in<br>lips exceeding 3 inch (7.6 cm) from<br>pavement edges and ends.  |                            |                                  |
| Heavy equipment (stationary or mobile)<br>operating or idle near AOA, in runway<br>approaches and departures areas, or in<br>OFZ.  |                            |                                  |
| Equipment or material near NAVAIDs that<br>may degrade or impair radiated signals<br>and/or the monitoring of navigation and<br>visual aids. Unauthorized or improper<br>vehicle operations in localizer or glide<br>slope critical areas, resulting in electronic<br>interference and/or facility shutdown. |                            |                                  |
| Tall and especially relatively low visibility<br>units (that is, equipment with slim profiles)<br>— cranes, drills, and similar objects —<br>located in critical areas, such as OFZ and  |                            |                                  |

#### **Table D-1. Potentially Hazardous Conditions**

| Item  | Action Required (Describe) | No Action<br>Required<br>(Check) |
|---|----------------------------|----------------------------------|
| approach zones.   |                            |                                  |
| Improperly positioned or malfunctioning<br>lights or unlighted airport hazards, such as<br>holes or excavations, on any apron, open<br>taxiway, or open taxi lane or in a related<br>safety, approach, or departure area.   |                            |                                  |
| Obstacles, loose pavement, trash, and other<br>debris on or near AOA. Construction debris<br>(gravel, sand, mud, paving materials) on<br>airport pavements may result in aircraft<br>propeller, turbine engine, or tire damage.<br>Also, loose materials may blow about,<br>potentially causing personal injury or<br>equipment damage.   |                            |                                  |
| Inappropriate or poorly maintained fencing<br>during construction intended to deter<br>human and animal intrusions into the AOA.<br>Fencing and other markings that are<br>inadequate to separate construction areas<br>from open AOA create aviation hazards.  |                            |                                  |
| Improper or inadequate marking or lighting<br>of runways (especially thresholds that have<br>been displaced or runways that have been<br>closed) and taxiways that could cause pilot<br>confusion and provide a potential for a<br>runway incursion. Inadequate or improper<br>methods of marking, barricading, and<br>lighting of temporarily closed portions of<br>AOA create aviation hazards. |                            |                                  |
| Wildlife attractants — such as trash (food<br>scraps not collected from construction<br>personnel activity), grass seeds, tall grass,<br>or standing water — on or near airports.   |                            |                                  |
| Obliterated or faded temporary markings on active operational areas.  |                            |                                  |
| Misleading or malfunctioning obstruction<br>lights. Unlighted or unmarked obstructions<br>in the approach to any open runway pose<br>aviation hazards.  |                            |                                  |

| Item   | Action Required (Describe) | No Action<br>Required<br>(Check) |
|--|----------------------------|----------------------------------|
| Failure to issue, update, or cancel<br>NOTAMs about airport or runway closures<br>or other construction related airport<br>conditions.   |                            |                                  |
| Failure to mark and identify utilities or<br>power cables. Damage to utilities and<br>power cables during construction activity<br>can result in the loss of runway / taxiway<br>lighting; loss of navigation, visual, or<br>approach aids; disruption of weather<br>reporting services; and/or loss of<br>communications. |                            |                                  |
| Restrictions on ARFF access from fire<br>stations to the runway / taxiway system or<br>airport buildings.  |                            |                                  |
| Lack of radio communications with construction vehicles in airport movement areas.   |                            |                                  |
| Objects, regardless of whether they are<br>marked or flagged, or activities anywhere<br>on or near an airport that could be<br>distracting, confusing, or alarming to pilots<br>during aircraft operations.  |                            |                                  |
| Water, snow, dirt, debris, or other<br>contaminants that temporarily obscure or<br>derogate the visibility of runway/taxiway<br>marking, lighting, and pavement edges.<br>Any condition or factor that obscures or<br>diminishes the visibility of areas under<br>construction.  |                            |                                  |
| Spillage from vehicles (gasoline, diesel<br>fuel, oil) on active pavement areas, such as<br>runways, taxiways, aprons, and airport<br>roadways.  |                            |                                  |
| Failure to maintain drainage system<br>integrity during construction (for example,<br>no temporary drainage provided when<br>working on a drainage system).  |                            |                                  |

| Item  | Action Required (Describe) | No Action<br>Required<br>(Check) |
|---|----------------------------|----------------------------------|
| Failure to provide for proper electrical<br>lockout and tagging procedures. At larger<br>airports with multiple maintenance<br>shifts/workers, construction contractors<br>should make provisions for coordinating<br>work on circuits. |                            |                                  |
| Failure to control dust. Consider limiting<br>the amount of area from which the<br>contractor is allowed to strip turf.   |                            |                                  |
| Exposed wiring that creates an<br>electrocution or fire ignition hazard.<br>Identify and secure wiring, and place it in<br>conduit or bury it.  |                            |                                  |
| Site burning, which can cause possible obscuration.   |                            |                                  |
| Construction work taking place outside of designated work areas and out of phase.   |                            |                                  |

### **EXHIBIT J**

## **CONTRACT DRAWINGS**

202476290: Flatiron Dragados Constructors, Inc.

## RWY 17L-35R Wildlife Hazard Mitigation Ph 2 All Drainages

Incorporated by Reference as found in File #20250031 at the Denver Office of the Clerk and Recorder



# INVITATION FOR BID

## RWY 17L-35R WILDLIFE HAZARD MITIGATION PHASE 2 ALL DRAINAGES IFB NO. 202476290

NOVEMBER 12, 2024

#### **INVITATION FOR BID (IFB)**

Airport Office Building (AOB) Denver International Airport (DEN) 8500 Pena Boulevard, Room 8810 Denver, Colorado 80249-6340

Contract Administrator (CA):Diane FolkenE-Mail:contract.procurement@flydenver.com

Invitation for Bid #202476290

#### BIDS MUST BE RECEIVED BY: Thursday, December 12, 2024, by 2:00 p.m. Denver Local Time

#### **Schedule of Activities**

This projected schedule is an estimated timeline and is subject to change at the sole discretion of the City. All times listed in this document are understood to be Denver local time.

| Event                                 | Date  |
|---------------------------------------|---|
| IFB Advertisement                     | November 12, 2024                                 |
| Optional Pre-Bid Conference           | November 19, 2024, at 3:00 p.m. Denver Local Time |
| Last Date to Submit Written Questions | November 28, 2024, by 2:00 p.m. Denver Local Time |
| Bids Due                              | December 12, 2024, by 2:00 p.m. Denver Local Time |

#### Pre-Bid Conference – OPTIONAL

An optional Pre-Bid Conference will be held virtually via a Microsoft Teams Meeting at the date and time listed above in the Schedule of Activities. Please click on the following link to access the meeting.

#### \*\*Teams Meeting Link\*\*

At this conference, DEN representatives will explain the opportunity and answer questions regarding this IFB, including any written questions submitted to DEN prior to the conference.

#### **IFB Questions**

DEN will not answer any telephone inquiries about this IFB. Written questions are due by the time listed above in the Schedule of Activities and shall be submitted electronically via the Rocky Mountain E-Purchasing System (BidNet) website. **DEN requires all questions to be submitted individually on this site.** 

Note: BidNet limits the characters available to input for DEN to respond to each question. For this reason, multiple questions may not be submitted as a single question, as DEN is unable to respond to multiple questions in the space provided. Because of this limitation, DEN reserves the right to reject groups of questions submitted in a single question box or to select and respond to only one question posed. A multipart question containing an initial question, and a follow-up is the exception to this rule. All questions and answers will be posted on the BidNet website as an addendum to the bid at the link below following the deadline for submittal of questions:

https://www.bidnetdirect.com/colorado/cityandcountyofdenverdepartmentofaviation

#### **Bid Submittal**

The bid shall be prepared in accordance with the Preparation of Bid as described in Section III of this IFB. Bidders shall submit their bid and all required forms via the BidNet website at the link below. Bids are due by the date and time listed in the Schedule of Activities above.

#### https://www.bidnetdirect.com/colorado/cityandcountyofdenverdepartmentofaviation

Allow ample time for the electronic submission of your bid. Following are links to a BidNet Electronic Bid Submission (EBS) guide and EBS FAQ site. DEN strongly encourages Bidders to review this information prior to starting your submission in addition to starting the submission process at least one (1) business day prior to the bid due date. DEN will not extend the submission deadline due to any technical issues or outages you may experience.

EBS FAQs: <u>http://faq.bidnetdirect.com/electronic-bid-submission/</u>

#### **Disadvantaged Business Enterprise (DBE) Participation**

The U.S. Department of Transportation (USDOT) grants authority to the Division of Small Business Opportunity (DSBO) to establish participation requirements under 49 C.F.R § 26 and 40 C.F.R. § 30. The participation requirement for this project is:

#### 25% Disadvantaged Business Enterprise (DBE)

The requirement must be met with certified firms, 49 C.F.R. § 26.55, or through the demonstration of a sufficient good faith effort, 49 C.F.R. § 26.53. DSBO has designated a DBE requirement for this project. This procurement and resulting contract are governed by the U.S. Department of Transportation (USDOT) Rules and Regulations and Code of Federal Regulations (C.F.R.) 49 C.F.R. § 26 or 40 C.F.R. § 30, as well as DSBO's DBE Program Plan (collectively, the "DBE Program"). Throughout the life of the contract, the awarded contractor ("Contractor") will be required to comply with the DBE Program. Failure by the Contractor to comply therewith during the performance of the contract is a material breach of the contract, which may result in the imposition of sanctions on the Contractor, as deemed appropriate by DSBO.

#### **General Statement of Work**

The objective of this project is to mitigate standing water and associated vegetative growth within the identified areas which act as wildlife attractants in the vicinity of the Runway 17L-35R complex in accordance with the Wildlife Hazard Management Plan. Wildlife strikes for this complex have been recorded at a rate of two to three times those of other DEN Runway complexes. The intent of this specific phase is to address drainage issues in the remaining seven (7) of nine (9) areas that were identified across the east airfield, specifically near the Runway 17L-35R complex.

Phase 1 was designed and constructed in 2019 and addressed drainage areas 1 and 2. Phase 2 ALL DRAINAGES is intended to be constructed in 2025 and will address drainage areas 3, 4, 5, 6, 7, 8, 9A and 9B. The project has been designed in accordance with recommendations from USDA, the DEN Airport Drainage Master Plan, and the FAA approved Wildlife Hazard Management Plan.

#### **Prequalification Requirements**

Each Bidder must be prequalified in category 3C at or above the \$12,000,000.00 monetary level in accordance with the City's Rules and Regulations Governing Prequalification of Contractors. Each Bidder must have submitted a prequalification application a minimum of ten (10) calendar days prior to the response due date. Applications must be submitted via <u>B2Gnow</u>. To view the Rules and information on how to apply, please visit our website at <u>www.denvergov.org/prequalification</u>.

#### **BID SUBMITTAL REQUIREMENTS**

The following is a checklist for reference when compiling the Bid submission. The documents listed below are required:

- Bid Forms completed and signed
  - Bid Letter completed and acknowledging all addenda
  - Bid Data Forms –complete all forms
  - Disclosure of Legal & Administrative Proceedings and Financial Conditions
  - Bid Bond
- □ Sample Agreement:
  - List of proposed modifications/legal issues regarding terms of the Sample Agreement as outlined in Section II-2
- DSBO Forms
  - Commitment to DBE Participation
  - 1A List of Proposed Subcontractors, Subconsultants and/or Suppliers
  - Letter of Intent
- Diversity Survey
  - Diversity and Inclusiveness in City Solicitations (online survey) – include the completed survey with your Bid submission
- Financial Forms
  - Bid Form: Schedule of Prices/Values and Quantities
- □ Federal Funding Procurement Forms
  - Certificate of Buy American Compliance for Total Facility
  - Certificate of Buy American Compliance for Manufactured Products
  - Certification of Offeror/Bidder Regarding Tax Delinquency and Felony Convictions

#### TABLE OF CONTENTS

| RWY 1                      | RWY 17L-35R WILDLIFE HAZARD MITIGATION PHASE 2 ALL DRAINAGES Page |  |      |  |  |  |
|----------------------------|---|--|------|--|--|--|
| INVITATION FOR BID (IFB)   |   |  |      |  |  |  |
| BID SUBMITTAL REQUIREMENTS |   |  |      |  |  |  |
| Ι.                         | CITY,   | AIRPORT AND PROJECT OVERVIEW   | 7    |  |  |  |
| II.                        | ADMI  | NISTRATIVE INFORMATION   | 8    |  |  |  |
|                            | II-1  | Issuing Office   | 8    |  |  |  |
|                            | II-2  | Introduction and Acceptance of IFB Terms                                   | 8    |  |  |  |
|                            | II-3  | Means of Communication   |      |  |  |  |
|                            | II-4  | Interpretation of Bid Documents  | 9    |  |  |  |
|                            | II-5  | Addenda  | 9    |  |  |  |
|                            | II-6  | DEN Website  | 9    |  |  |  |
|                            | II-7  | Withdrawal of Bid  | 9    |  |  |  |
|                            | II-8  | Rights of DEN  | 9    |  |  |  |
|                            | II-9  | Bidder Agreements  | . 10 |  |  |  |
|                            | II-10   | Disadvantaged Business Enterprise (DBE) Participation                      | . 10 |  |  |  |
|                            | II-11   | Certification of Independent Price and Work Determination                  | . 13 |  |  |  |
|                            | II-12   | Designation of Subcontractors  | . 14 |  |  |  |
|                            | II-13   | Payment  | . 14 |  |  |  |
|                            | II-14   | Disclosure of Legal and Administrative Proceedings and Financial Condition | . 14 |  |  |  |
|                            | II-15   | Insurance Requirements   | . 16 |  |  |  |
|                            | II-16   | Governmental Immunity  | . 16 |  |  |  |
|                            | II-17   | Security   | . 16 |  |  |  |
|                            | II-18   | Airport Identification (ID) Badge Requirements                             | . 17 |  |  |  |
|                            | II-19   | Background Checks  |      |  |  |  |
|                            | II-20   | Vehicles in the Secured Area   | . 18 |  |  |  |
|                            | II-21   | Violations   | . 18 |  |  |  |
|                            | II-22   | Diversity and Inclusivity in City Solicitations                            | . 19 |  |  |  |
|                            | II-23   | Wage Ordinances  | . 19 |  |  |  |
|                            | II-24   | Taxes  | . 19 |  |  |  |
|                            | II-25   | Conformed Technical Specifications and Contract Documents                  |      |  |  |  |
|                            | II-26   | Site Inspection and Investigations   |      |  |  |  |
|                            | II-27   | Materials and Substitutions  | . 20 |  |  |  |
|                            | II-28   | Permit Fees  |      |  |  |  |
|                            | II-29   | Construction Scheduling  |      |  |  |  |
|                            | II-30   | Certification Regarding Debarment, Suspension, Ineligibility and Volun     | tary |  |  |  |
|                            |   | sion   |      |  |  |  |
|                            | II-31   | Bond Requirements  |      |  |  |  |
|                            | II-32   | Bid Guarantee, Bond  |      |  |  |  |
|                            | II-33   | Payment & Performance Bonds  |      |  |  |  |
|                            | II-34   | Project Controls Requirements  |      |  |  |  |
|                            | II-35   | Equal Employment Opportunity   | . 22 |  |  |  |

|       | -36<br>  -37<br>  -38 | Conflicts of Interest<br>Title VI Solicitation Notice<br>Confidentiality of Records | 23 |
|-------|-----------------------|---|----|
|       | II-39                 | Denver Construction Careers Program (DCCP)  | 23 |
| III.  | PREP                  | ARATION OF BID  | 24 |
|       |                       | reparation of Bid   |    |
|       | III-2 C               | completing and Signing Bid Forms  | 24 |
| IV.   | EVAL                  | JATION OF BIDS  | 25 |
|       | IV-1                  | BASIS FOR SELECTING THE APPARENT LOW BIDDER   | 25 |
|       | IV-2                  | SUBMITTAL OF BIDS   | 25 |
|       | IV-3                  | UNACCEPTABLE BIDS   |    |
|       | IV-4                  | ONLY ONE BID ACCEPTED   |    |
|       | IV-5                  | CONSIDERATION OF BIDS   |    |
|       | IV-6                  | INFORMAL AND UNBALANCED BIDS  |    |
|       | IV-7                  | NOTICE TO APPARENT LOW BIDDER – EXECUTION OF CONTRACT                               |    |
| V.    | ATTA                  | CHMENT 1, BID FORMS   | 27 |
| VI.   | ATTA                  | CHMENT 2, DBE FORMS   | 39 |
| VII.  | ATTA                  | CHMENT 3, INSURANCE REQUIREMENTS  | 40 |
| VIII. | ATTA                  | CHMENT 4, DIVERSITY AND INCLUSIVENESS IN CITY SOLICITATIONS                         | 41 |
| IX.   | ATTA                  | CHMENT 5, SAMPLE AGREEMENT  | 42 |
| Х.    | ATTA                  | CHMENT 6, PERFORMANCE AND PAYMENT BOND  | 43 |
| XI.   | ATTA                  | CHMENT 7, PREVAILING WAGES  | 47 |
| XII.  | ATTA                  | CHMENT 8, LIEN RELEASE FORM   | 48 |
| XIII. | ATTA                  | CHMENT 9, FEDERAL FUNDING PROCUREMENT NOTICES AND FORMS                             | 50 |
| XIV.  | ATTA                  | CHMENT 10, SPECIAL CONDITIONS   | 64 |

#### I. <u>CITY, AIRPORT AND PROJECT OVERVIEW</u>

The values of equity, diversity, inclusivity, accessibility, and sustainability are inherent to the City's strategy to develop and maintain prosperous communities. Accordingly, these values are imbedded into all the City's procurement processes to ensure competitive procurements that offer equitable opportunities for all potential Bidders, including greater contracted and significant participation for historically underutilized businesses to ensure Denver's long-term economic, social, and environmental health. Through equitable procurements, the City is committed to working to remove barriers and increase access to City contracting opportunities for all historically underutilized and small businesses including those owned by veterans and individuals living with disabilities as well as those in economically distressed or redlined neighborhoods. It is a primary value to promote economic equity by engaging a more inclusive community of Bidders and contractors, both as prime and sub-contractors to address socioeconomic disparities. Through this promotion of equity and inclusion (EDI), the City strives to improve opportunities that ensure fair and just access to jobs, housing, education, mobility options, and healthier communities. It is the City's expectation that all successful Bidders demonstrate their commitment to these City values through their procurement responses and post contract activities.

Each procurement opportunity is to be approached with ethical and honest behavior. The City will solicit, evaluate, and award contracts based upon the Bidder's alignment with the City's values as it relates to its approach, proven experience, ability to perform work, costs, and pricing. DEN is looking for Bidders that demonstrate a history of equity, diversity, integrity, stewardship, innovation, and humanity. The City is looking for Bidders that have equity, diversity, and inclusion (EDI) embedded in their policies, procedures, practices, initiatives, and exhibit actionable results and ensures that of those that they partner with.

The City's values may be demonstrated through but are not limited to: (a) workforce expansion; (b) utilization of and work with the historically underutilized community, separate from required certified goals; (c) environmental sustainability and (d) EDI and Equal Employment Opportunity (EEO) programs for staff.

DEN plays a unique role as a gateway to the world for the region, our passengers, our communities, and our partners. As such, DEN has a generation of operators, concessionaires, designers, builders, planners, and small businesses that are stronger and more successful because of this work. DEN has also helped build new businesses that have flourished and grown into mature industry leaders. As part of its new Vision 100 plan, DEN intends to expand this legacy by looking to the community that has succeeded in the past at DEN to bring the next generation forward.

In accordance with procedures described herein, you are hereby invited to submit a Bid for the subject project, which is described in the Technical Specifications and Drawings incorporated herein. The work under this Contract is anticipated to start on or about April 2025 and has a scheduled duration of approximately 200 calendar days. The Bid must be prepared and submitted in accordance with the requirements and procedures contained in this IFB document and the City's ordinances, rules, policies, and procedures. Compliance with these requirements by the Bidder is mandatory and is a condition of responsiveness. Any failure to satisfy these requirements will be a sufficient basis for the City to disqualify the Bidder. The City shall not be liable for any of the Bidder's expenses associated with its preparation of the Bid or DEN's consideration of it. The Bidder, if selected, shall not include any such expenses as part of its fee for performing the Scope of Work.

#### II. ADMINISTRATIVE INFORMATION

#### II-1 Issuing Office

The issuing office is the City, by DEN Contract Procurement. This IFB is governed by the City's ordinances and Procurement Rules in effect at the time of its issuance. DEN Contract Procurement is the sole point of contact concerning this IFB. All communication must be done through DEN Contract Procurement.

#### II-2 Introduction and Acceptance of IFB Terms

The Bidder, by submitting its Bid, acknowledges that it understands and will agree to the corresponding Exhibits and the Scope of Work, and that the Bidder shall be able to perform as required. Acknowledgement of this condition shall be indicated by the signature of the Bidder on the Bid Acknowledgement Letter, which is attached hereto and incorporated here in as Attachment 1, or an officer of the Bidder legally authorized to execute contractual obligations. A submission in response to this IFB acknowledges acceptance by the Bidder of all terms and conditions as set forth herein. The Bidder shall identify clearly and thoroughly any variations between its Bid and this IFB. Failure to do so shall be deemed a waiver of any rights to subsequently modify the terms of performance, except as outlined or specified in this IFB.

Bidders shall undertake a detailed review of the Attachment 5, Sample Agreement and submit with their Bid a list of all legal issues or proposed modifications which the Bidder would like DEN to review and address, should they be selected as the apparent lowest Bidder. The Bidder may submit questions regarding the contract using the same method designated for other questions related to this IFB. Bidders are strongly advised to seek legal counsel for advice regarding the Sample Agreement. DEN will not respond to legal questions such as about the interpretation of a provision of the Sample Agreement or provide legal advice regarding the Agreement to Bidders. DEN shall assume that the Sample Agreement has been thoroughly reviewed and discussed with legal counsel prior to submission of the Bid. If the Bidder does not identify any issues or proposed modifications to the Sample Agreement, the City may refuse to consider any proposed revisions received later from the Bidder, if they are selected as apparent lowest Bidder. The City may consider the Bidder's comments in considering whether to select Bidder as the apparent best Bidder.

Attachment 5 is a sample agreement and, as such is subject to revision or modification by DEN at any time. DEN reserves the right to modify any term or condition of the Sample Agreement, and to add, delete or modify terms and conditions, as DEN's interests may require, prior to execution of a final agreement. The sample agreement contains provisions required by Federal, State, and/or City law and policy, and these provisions may not be revised or negotiated.

#### II-3 Means of Communication

During the solicitation process for this IFB, all communication between DEN Contract Procurement and Bidders will be via postings on DEN's Rocky Mountain E-Purchasing System's (BidNet) website:

https://www.bidnetdirect.com/colorado/cityandcountyofdenverdepartmentofaviation

DEN Contract Procurement will post notices, which include, but are not limited to, any modifications to administrative or performance requirements, answers to inquiries received, clarifications to requirements, addenda, and the announcement of the apparent lowest Bidder. It is the responsibility of each potential Bidder to monitor the BidNet website regularly in order to be aware of changes, communications and/or addenda to bids.

DEN will not be held responsible for misinformation received from private plan holders. Please use the BidNet website to obtain solicitation information for the airport.

#### II-4 Interpretation of Bid Documents

The Bidder may request, in writing, a clarification or interpretation of any aspect of the IFB documents. Such requests must be made via the BidNet website by the due date and time specified in the Schedule of Activities listed on Page 2. DEN shall post all questions and answers on the BidNet Website following the deadline for submittal of questions as an addendum to the bid. DEN will not accept or respond to oral inquiries except for those made at the Pre-Bid Conference. The only 'official' responses are those that are posted to the BidNet Website for this IFB.

#### II-5 <u>Addenda</u>

DEN reserves the right to revise the IFB documents at any time up to the time set for submission of the Bids. Any such revision(s) shall be described in an addendum to the IFB and shall be posted on the BidNet Website at the following link:

https://www.bidnetdirect.com/colorado/cityandcountyofdenverdepartmentofaviation

If DEN determines that the addendum may require significant changes to the Scope of Work, the deadline for submitting the Bids may be postponed by the number of days that DEN determines will allow Bidders sufficient time to revise their Bids. Any new submittal deadline date for delivering Bids to DEN shall be included in the addendum.

Bidders must acknowledge in the Bid submission that they received all addenda to the Bid documents (see Attachment 1, Part 1). Failure to acknowledge receipt of addenda may disqualify the Bidder.

#### II-6 **DEN Website**

It shall be conclusively presumed that the Bidder did, before submitting a Bid and prior to the final Bid deadline, read all addenda, posted decisions and other information items relevant to the IFB which appeared on the DEN BidNet Website. Bidder may also contact the DEN Contract Administrator, Diane Folken by email at <u>contract.procurement@flydenver.com</u> to confirm all posted information.

Please visit the BidNet Website at the following link which contains such services and information as: <u>https://www.bidnetdirect.com/colorado/cityandcountyofdenverdepartmentofaviation</u>

- 1. Advertisements for RFx and IFB opportunities
- 2. Status of RFx and IFB opportunities
- 3. Addendums including vendor questions and responses
- 4. Plan holder's/Document Taker's list
- 5. Award information

#### II-7 Withdrawal of Bid

A Bidder may withdraw its Bid by submitting to DEN a written request signed by the Bidder's authorized representative. The withdrawal of a Bid does not prejudice the right of the Bidder to submit future Bids.

#### II-8 Rights of DEN

DEN reserves the rights to cancel or modify this IFB at any time and to reject any or all Bids for any reason or for no reason. This IFB is an open and equitable invitation for Bids, and each Bid constitutes an offer to contract that DEN may consider in its sole and absolute discretion. Any errors or omissions in a Bid may result in the rejection and disqualification of the entire Bid. Errors, omissions, and other acts that may

#### Page 10 Administrative Information

result in Bid rejection and disqualification include, but are not limited to, failure to strictly comply with the IFB requirements or any applicable ordinances, rules, or policies; the submission of any inaccurate or false information; any improper communications or collusion involving Bidders; default or termination for cause of any public or private contracts within the past (5) five years; delinquent arrearages owed to DEN; and failure to submit proof of licensing or franchise authority and any related exclusivity requirements.

Notwithstanding the broad rights reserved to DEN to reject and disqualify any or all Bids, DEN may waive any immaterial deficiencies in Bids and may allow Bidders to cure any such deficiencies if an opportunity to cure is determined by DEN to be in DEN's best interests. If given an opportunity to cure, Bidders will be notified of the allotted time to correct the identified deficiency; failure to correct the deficiency in the time allotted may result in Bids being deemed non-responsive and disqualified. DEN's waiver of an immaterial deficiency will in no way modify the IFB or excuse Bidders from full compliance with all IFB specifications. DEN may exercise the foregoing rights at any time without notice and without any liability whatsoever to any Bidder or other party. By responding to this IFB, each Bidder is deemed to accept and agree to all of these terms and conditions and to waive any rights to challenge DEN's determinations regarding Bid deficiencies in accordance with this section.

#### II-9 Bidder Agreements

Bidders may submit proposed agreements of any form (contracts or documents) that contain supplemental terms and conditions that the Bidder desires to be considered by the City for inclusion in the contract. Such forms may include Bidder's software licensing agreements, maintenance contracts, and technical support agreements. By accepting delivery of these items, DEN is not bound to accept them as part of an ensuing contract. DEN may negotiate such supplemental terms and conditions that do not materially conflict with the contract terms and conditions detailed in this IFB and do not materially change the nature of this solicitation or adversely affect competition. If the parties cannot agree on the terms of the contract, including any terms desired by Bidder, DEN may terminate negotiations with the Bidder and enter into a contract with another responsive Bidder. *Certain of DEN's contract provisions are required by Federal, State and/or City law and policy and are not subject to modification*.

#### II-10 Disadvantaged Business Enterprise (DBE) Participation

The City and County of Denver's ("City") Disadvantaged Business Enterprise (DBE) policy is to ensure nondiscrimination in the award and administration of the City's construction contracts, professional services contracts, and in the procurement of common goods and services. The awarded contractor ("Contractor") shall comply with and implement requirements of the U.S. Department of Transportation (USDOT) Rules and Regulations and Code of Federal Regulations (C.F.R.) 49 C.F.R. § 26 or 40 C.F.R. § 30, and DSBO's DBE Program Plan (collectively, the "DBE Program") in the award and administration of Subcontracts under any agreement resulting from this solicitation (the "Contract"). The Contractor shall not discriminate on the basis of race, color, national origin, or sex in the administration and performance of the Contract. The Contractor shall carry out DBE Program requirements in the award and administration of its contracts as well as the flow down provisions of this DBE Contract requirements to be incorporated in all DBE subcontract agreements regardless of tier. It is the City's intention to create a level playing field on which DBEs can compete fairly for federally-funded contracts. Failure by the Contractor to comply with or implement these requirements is a material breach of the Contract, which may result in the termination of the Contract or such other remedy as the City deems appropriate. These legal remedies may include but are not limited to: withholding monthly progress payments, assessing sanctions, liquidated damages, and/or disqualifying the Contractor from future bidding as non-responsible. 49 C.F.R. § 26.13. The City's commitment to the DBE Program is not intended to and shall not be used as a justification to discriminate against any qualified company or group of companies.

#### City's Equity, Diversity, & Inclusion Values

The City is committed to advancing its vision of equity, diversity, inclusion, and sustainability through growing the capacity of historically underutilized businesses, which include DBE firms, providing significant contracting opportunities, and ensuring they benefit from said contracts.

#### **Counting DBE Participation**

For a firm's performance to count toward meeting the DBE requirement, they must be DBE certified by the City or the Colorado Department of Transportation (CDOT), also known as the Colorado Unified Certification Program (UCP), on or before execution of Contractor's agreement with the DBE firm and must be certified in the NAICS code(s) that coincide with the scope of work that they will be performing. In instances of a DBE Prime Contractor, the DBE Prime must be certified prior to executing their agreement with the City. The UCP maintains a DBE Directory (Directory), which is a current listing of UCP-certified DBEs and may be accessed via the DSBO website at <a href="https://www.denvergov.org/dsbo">https://www.denvergov.org/dsbo</a>. Bidders are encouraged to use the Directory to assist in identifying DBEs for the work and supplies required for the project. Bidders are reminded that changes may be made to the Directory at any time. DBE certification or listing in the Directory is not a representation or warranty by the UCP regarding the qualifications of any listed DBE.

During performance, accounting of DBE participation will be maintained for all purchase orders, task orders, and work orders, which participation will collectively be applied to the contract's overall DBE participation attainment.

In utilizing the participation of a DBE supplier, the degree to which their participation counts towards satisfaction of the DBE requirement varies. If materials or supplies are obtained from a DBE manufacturer, one hundred percent (100%) of the cost of the materials or supplies counts toward the requirement. Sixty percent (60%) of the value of the commercially useful function performed by DBE regular dealers counts toward satisfaction of the requirement. Only the bona fide commissions earned by manufacturer representatives or brokers for their performance of a commercially useful function counts toward meeting the requirement. Therefore, Bidder must separate bona fide brokerage commissions from the actual cost of the supplies or materials provided to determine the actual dollar amount of participation that can be counted towards meeting the requirement.

Should any designated alternate be selected by the City for inclusion in the contract ultimately awarded, the DBE requirement percentage level submitted at time of bid opening, on the base bid, will also apply to the selected alternates and must be maintained through the remaining term of the contract on the total contract amount, including any alternate work. Therefore, bidders are urged to consider participation in preparing bids for designated alternates.

#### DBE Responsiveness Requirements

Award of this project will be determined, in part, on Bidder's commitment to strengthen the disadvantaged business community. Said commitment is shown through adherence to and thoughtful completion of the below-listed DSBO bid requirements, which are all conditions of responsiveness. Failure to submit a responsive bid constitutes cause for rejection thereof.

#### 1. Non-Competition

Bidder shall not restrict a DBE from providing subconsulting or subcontracting quotations to other Bidders. Any Bidder who does so shall cause their bid to be rejected.

#### 2. Joint Ventures

If Bidder is participating in a joint venture with a certified DBE firm, bidder must submit the firm's Joint Venture Agreement to DSBO at least 10 working days prior to bid. The Joint Venture must be approved by DSBO.

A Joint Venture is an association of a DBE firm and one or more other firms to carry out a single, for-profit business enterprise, for which the parties combine their property, capital efforts, skills and knowledge, and in which the DBE is responsible for a distinct, clearly defined portion of the work of the contract and whose share in the capital contribution, control, management, risks, and profits of the joint venture are commensurate with its ownership interest.

DSBO will count a portion of the total dollar value of the joint venture contract toward the DBE requirement equal to the distinct, clearly defined portion of the work that the DBE performs with its own forces in a NAICS code in which the firm is DBE certified. The joint venture agreement MUST specify the services, dollar value, reporting structure, and details of the DBE's performance requirements associated with their percent of the joint venture ownership.

#### 3. Commitment to DBE Participation

Bidder shall include with their bid a completed DSBO form, entitled "Commitment to DBE Participation," stating their committed DBE participation percent on this project. The committed participation level will be inserted into any resulting contract and the Contractor must comply with that committed participation amount during the term of the contract.

In determining whether a bidder's committed level of participation meets the stated DBE requirement, DSBO shall base its calculation of applicable dollar amounts and percentages on the total base bid amount. If a bid contains alternates, participation contained in any alternate will not count towards satisfaction of the requirement at time of bid opening.

#### 4. Letter of Intent

Bidder shall include with their bid completed DSBO form(s), entitled "Letter of Intent" (LOI). The LOI evidences Bidder's understanding that they will enter into a contractual relationship with the listed DBE firm or that Bidder's subcontractor(s), subconsultant(s), and/or supplier(s) will do so. A separate LOI is required for each DBE subcontractor, subconsultant, and/or supplier at all tiers. Additionally, a DBE Prime Bidder must submit a LOI for itself for self-performed work. The collective LOI amounts must be consistent with the total committed DBE participation percent stated on the Commitment to DBE Participation form.

#### 5. List of Proposed Subcontractors, Subconsultants, and/or Suppliers

Bidder shall include with their bid a completed DSBO form, entitled "List of Proposed Subcontractors, Subconsultants, and/or Suppliers," which is a comprehensive list of all firms (DBE and non-DBE) with whom Bidder will contract for this project, at all tiers. Each DBE firm's "contract value" listed on this form must be consistent with the amount listed on that firm's corresponding LOI.

#### 6. Accurate, Complete, Consistent, and Executed

Bidder is urged to carefully review their DSBO forms before submission to ensure that the forms are accurate, complete, consistent as between one-another, and executed by the appropriate parties. Only the DBE firms identified on the above-listed required DSBO forms and DBE certified in relevant NAICS codes at the time of bid opening, and the precise levels of participation listed for each, will be considered in determining whether Bidder has committed to meet the designated

DBE requirement. Additional DBE participation submitted after bid opening will not be considered in determining responsiveness.

#### 7. Good Faith Effort

If Bidder cannot meet the DBE requirement established by DSBO or is able to only meet part of the requirement, they shall furnish to DSBO with their bid, a comprehensive statement of their good faith efforts to meet the requirement, along with supporting documentation demonstrative thereof. This means that Bidder must show that they took all necessary and reasonable steps to achieve the DBE requirement 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.

The statement of good faith efforts should address the categories outlined in 49 C.F.R. § 26, Appendix A and any additional criteria established by rule or regulation. As part of their good faith efforts, Bidders are encouraged to solicit the support and assistance of DSBO by contacting the procuring agency's Contract Administrator (CA) with specific questions; the CA will coordinate with DSBO to reply thereto. All good faith efforts information must be complete, accurate, adequately documented, and submitted with the bid. Good faith efforts must be demonstrated to be substantive and not merely for formalistic compliance with 49 C.F.R. § 26.53.

To award a contract to a bidder that has failed to meet the DBE requirement, DSBO will determine whether Bidder made good faith efforts to actively, effectively, and aggressively seek DBEs to meet the DBE requirement prior to bid submission. Failure of Bidder to show good faith efforts shall render their bid ineligible for further consideration with the City.

#### 8. Authority

DBE statutes, 49 C.F.R. § 26 or 40 C.F.R. § 30, and rules and regulations promulgated pursuant thereto apply to this project and are incorporated into these solicitation documents by reference. Compliance with those, and any additional requirement contained herein, are conditions of responsiveness. The DSBO Ordinance, its accompanying rules and regulations, and additional DBE guidance are available here: <u>https://www.denvergov.org/dsbo</u>; the C.F.R. is available here: <u>https://www.eC.F.R..gov/</u>. Bidder is encouraged to contact the procuring agency with specific questions related to compliance therewith, who will coordinate with DSBO to reply to Bidder's questions.

#### II-11 Certification of Independent Price and Work Determination

By submission of this Bid, each Bidder, and in the case of a joint Bid, each party thereto, certified, that, in connection with this procurement:

- a. Prices and specific work processes in this Bid have been arrived at independently, without consultation, communication or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other Bidder or with any competitor, or with any party contracted by DEN to design and/or manage all or part of the program or work of which this IFB is a part;
- b. Unless otherwise required by law, the prices quoted and specific work processes described in this Bid have not been knowingly disclosed by the Bidder and will not knowingly be disclosed by the Bidder prior to opening, directly or indirectly to any other Bidder or to any competitor or to any party contracted by DEN to design and/or manage all or part of the program or work of which this IFB is a part; and

c. No attempt has been made or will be made by the Bidder to induce any other person or firm to submit or not to submit a Bid for the purpose of restricting competition.

Further, each person signing Attachment 1, Part 1 Bid Letter, for this Bid certified that:

- d. They are the person in the Bidder's organization responsible for the decision as to the prices being offered herein and that they have not participated, and will not participate, in any action contrary to subsection (a) through (c) above; or
- e. They are not the person in the Bidder's organization responsible for the decision as to the prices being offered herein but that they have been authorized in writing to act as agent for the persons responsible for such decision in certifying that such persons have not participated, and will not participate, in any action contrary to subsections (a) through (c), above, and as their agent does hereby so certify; and they have not participated, and will not participate, in any action contrary to subsections (a) through (c), above.

A Bid will not be considered for award where subsections (a), (c), (d) or (e), above, have been deleted or modified. Where (b) above has been deleted or modified, the Bid will not be considered for award unless the Bidder furnishes with the Bid a signed statement which sets forth in detail the circumstances of the disclosure and the Chief Executive Officer (CEO), or its designee, determines that such disclosure was not made for the purpose of restricting competition.

#### II-12 Designation of Subcontractors

The Bidder shall describe the qualifications of each subcontractor which it intends to use and the percentage and scope of the work which will be assigned to each of them. Resumes for the subcontractor's key personnel must be included.

Bidders who submit a Bid in response to this IFB are precluded from participation as a subcontractor with any other Bidders who submit a Bid for this IFB. However, subcontractors may be named on more than one (1) Bid. Subcontractors who are named in more than one Bid are prohibited from sharing information about one Bidder with another Bidder or utilizing such information to assist in the preparation of another Bid.

#### II-13 Payment

Appropriate clarifications and additions to the Scope of Work may be made during negotiations with the successful Bidder. It is the intent of DEN to enter into a Contract in which the Bidder will be paid pursuant to the terms of the Contract.

#### II-14 Disclosure of Legal and Administrative Proceedings and Financial Condition

- 1. The Bidder shall submit (at time of submittal) a statement which shall disclose all legal or administrative proceedings that involve a civil claim in excess of Fifty Thousand Dollars (\$50,000) in which the Bidder, its principals or key personnel were a party in the last five (5) years. The Bidder shall include in the statement:
  - a. The caption of the action naming all parties;
  - b. The case number, jurisdiction and the date the action was filed;
  - c. A brief description of the action, the amount of the claim and whether the action involved performance under any public or private construction contract; and
  - d. The outcome or disposition of the action.
- 2. The Bidder shall submit (at time of submittal) a statement which shall disclose whether Bidder has filed for protection under the laws of the U. S. Bankruptcy Code within the last ten (10) years.

- 3. The Bidder shall submit (at time of submittal) a statement as to whether the Bidder, its principals, or key employees presently, or in the past, are or have been involved in any debarment or suspension proceedings. Please include a description of any proceedings which prohibited or limited the Bidder from bidding or entering into any contract with any federal, state or local government entity. Include a brief description of the reason(s) for such action having been taken, the effective dates thereof and the governmental agency.
  - a. If the Bidder is a partnership or joint venture, please include a statement disclosing the information listed in subparagraph A and B, above, for each partner or joint venturer. If the Bidder is fifty percent (50%) or greater owned by another entity or individual, please include a statement disclosing the above information for such entity or individual.
- 4. The Bidder shall submit (at time of submittal) a statement as to whether the Bidder, its principals or key employees have been convicted of any crime related embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, receiving stolen property, fraud, unfair trade practices, violation of state of federal antitrust statutes, or other law indicating a lack of business integrity or business honesty or have been convicted of any other felony in any jurisdiction within the last five (5) years. Include the current status of any such principal or key employees.
- 5. The Bidder shall submit (at time of submittal) its Dun & Bradstreet identification number if applicable. If the Bidder is a partnership or joint venture, it must submit the Dun & Bradstreet identification number for each partner of a joint venture.
- 6. If the Bidder is a publicly held company, it shall submit (at the time of submittal) a list of any holders of ten percent (10%) or more of its stock.
- 7. During contract negotiations or at any time during the term of the executed contract, the Bidder may be asked to submit the following:
  - a. An audited statement of overhead rates, payroll taxes and operating (profit) margin used to calculate hourly billing rates for DEN's approval. If the Bidder does not have audited overhead rates, a Core Staff Labor Rates Sheet, may be requested for each entity without audited overhead rates. This statement shall cover the Bidder's most recently completed fiscal year and shall be signed by a certified public accountant as a Certified Audited Statement in which the accountant expresses their opinion as to the fairness with which the statement represents the Bidder's financial position, results of operations and changes in financial position.
  - b. If the Bidder is a partnership or joint venture, a Certified Audited Statement is required for each partner or joint venture. If the Bidder does not have audited overhead rates, a Core Staff Labor Rates Sheet, may be requested for each entity without audit overhead rates. If any individual owns thirty-two percent (32%) or more of the Bidder, a Certified Audited Statement is required for each such individual or if a Certified Audited Statement is not available, then the individual must supply copies of their federal tax returns for the prior two (2) years.
  - c. If a Bidder is a small business as defined by the United States Small Business Administration, the Bidder may elect to submit copies of its Federal tax return for the prior two (2) years and prepare a Core Staff Labor Rates Sheet, in lieu of a Certified Audited Statement.
  - d. A signed statement certifying that no material or significant changes have occurred since the date of completion of the Certified Audited Statement, or the filing of the Federal tax return and the date of the Bid.

#### II-15 Insurance Requirements

Bidder shall adhere to all insurance requirements stated in Attachment 3, which are attached hereto and incorporated herein by reference. ACORD FORM (or equivalent) must be emailed in pdf format to: <u>DENCOI@flydenver.com</u>.

#### II-16 Governmental Immunity

Bidders and subcontractors understand and agree that the City, its officers, officials, and employees are relying on, and do not waive or intend to waive by any provisions, the monetary limitations or any other rights, immunities and protections provided by the Colorado Governmental Immunity Act, §§ 24-10-101 - 120, C.R.S., or otherwise available to the City, its officers, officials, and employees.

#### II-17 Security

After receiving an executed contract, the Bidder shall be deemed a Contractor of DEN. The Contractor (or subcontractor) requiring access to the Controlled Area, Sterile Area or Secured Area shall become a "Participant" in the Airport Security Program (ASP) and remain in good standing in order to retain Airport Security privileges.

Participant guidelines are outlined in DEN Rules and Regulations Part 20. A Contractor must be sponsored by an Air Carrier, Tenant or by the City. Once a Contractor company has been sponsored, they must designate an Authorized Signatory.

The sponsorship establishes that a Contractor (or subcontractor) has legitimate business at the Airport. All construction Contractors must submit a Participant Sponsorship form signed by their sponsor. A company sponsoring a Participant shall immediately notify Airport Security when any sponsorship is terminated.

A subcontractor company working under its own entity must be sponsored by a Contractor company. The subcontracting company must designate its own Authorized Signatory(ies).

Each Participant shall designate an Authorized Signatory to ensure the Participant's compliance with the ASP and act as the point of contact between the Participant and Airport Security. The Authorized Signatory shall be designated in writing to Airport Security by the Participant.

The Authorized Signatory is responsible for entering and verifying all information in DEN's security system. It is the Authorized Signatory's responsibility to ensure that Airport Security maintains valid contact information. The Authorized Signatory must maintain a current and valid Airport Identification Badge (ID Badge).

The security status of the Airport is subject to change without notice. Should the security status of the Airport change at any time during the term of the Contract, a written notice shall be issued to the Contractor, detailing all applicable security modifications. The Contractor must take immediate steps to comply with those security modifications.

The Contractor shall return to DEN, upon Contract completion or termination, or upon demand by DEN, all access keys and Airport ID Badges issued to it by DEN to Controlled Areas, Sterile Areas, or Secured Areas of the Airport. If the Contractor fails to return any such Airport ID Badge(s) or Airport Security Key(s) at Contract completion or termination or upon demand by the DEN, the Contractor shall be liable to the DEN for all DEN's costs, including the DEN's labor costs for re-coring doors and any other work which is required to prevent compromise of any Airport Security system. In order to collect such costs hereunder, the DEN may withhold funds in such amount from any amounts due and payable to the Contractor under the Contract.

#### Page 17 Administrative Information

Airport Security must be immediately notified if an Airport ID badge or security key is lost or stolen and must be notified immediately upon the termination of an individual's employment. Pursuant to Title 49 Code of Federal Regulations (C.F.R.) Part 1520.04-10(d) a fee shall be assessed against any employer who fails to return an Airport ID badge or security keys upon the termination of an individual's employment, transfer, or completion of a project or contract. An additional fee may be requested to cover the administrative cost of processing a lost badge or security key.

#### II-18 Airport Identification (ID) Badge Requirements

All individuals employed at the Airport with Secured Area access, or working in the Terminal, Concourses or Parking and Ground Transportation facilities, must obtain an Airport ID Badge. Airport ID Badges will be issued by Airport Security. All Airport ID Badges shall be and remain the property of the Airport. The Airport ID Badge must be surrendered on demand to Airport Operations and/or a Contract Security Guard. An individual employed by more than one (1) company, or changing employers, must obtain an Airport ID Badge for each company. Badge color indicates general areas and levels of authorization in relationship with direct support of an individual's job function. Badge color does not determine access. The respective classes of Airport ID Badges, indicated by badge color and associated driving endorsement icon, describe driving privileges in direct correlation with job function.

The individual must complete an online application entered and approved by their firm's Authorized Signatory. Two (2) valid forms of identification must be presented, one of which must be a governmentissued photo identification. The second form of identification must verify proof of citizenship (i.e., birth certificate or legal residency with work authorization). All information regarding the individual's name, age, gender, and other vital statistics on both forms of identification must be consistent and verifiable.

A DEN Fingerprinting and Badge Application, Security Threat Assessment (STA) and Criminal History Record Check (CHRC) must be completed for everyone requesting an Airport ID Badge. Allow adequate time for processing of the STA and CHRC.

The individual must view a training film on DEN Rules and Regulations as they pertain to overall security and pass a corresponding test to assure understanding of the DEN Rules and Regulations.

If the individual requests driver authorization, a valid driver's license must be presented, and the individual must view a training film on DEN Rules and Regulations as they pertain to overall Movement of Vehicles in the Secured Area and pass a corresponding test to assure understanding of the Rules and Regulations.

A construction orientation specific to the project must be conducted. A designated time for this session must be coordinated with Planning and Development and Airport Operations.

A lost or stolen Airport ID Badge must be immediately reported to Airport Security. For a replacement Airport ID Badge, a new DEN Fingerprinting and Badge Application must be completed and entered by the Company's Authorized Signatory. A non-refundable fee must be paid for a replacement Airport ID Badge.

If for any reason the Airport ID Badge becomes inoperable or damaged, the Airport ID Badge holder shall return that badge to Airport Security, and a replacement badge will be issued. A replacement fee may be assessed should the damage be attributable to the negligence of the employee who was issued the badge.

When an employee is terminated, the Contractor company shall immediately notify Airport Security. This notification must be followed by the return of the Airport ID Badge and written confirmation of this information. The Contractor company must recover Airport ID Badges from individuals whose employment at the Airport has been terminated. The Contractor company shall notify Airport Security in

writing when a subcontractor is no longer under the Contractor company's sponsorship. All Airport ID Badges must be returned to Airport Security.

An employee possessing a valid Airport ID Badge may escort other individuals into the Secured Area(s) under the conditions listed in the Rules and Regulations Part 20. If the project is extended, DEN's Project Manager must submit a new Sponsorship Form with a new expiration date. This can be accomplished thirty (30) calendar days prior to expiration of the Airport ID Badge. An application revision must be completed for each employee still required on the project if the badges have expired.

#### II-19 Background Checks

Every individual requesting an Airport ID Badge must complete a CHRC and an STA for unescorted access to the Sterile and Secured Areas.

If an applicant has been convicted of a crime or found guilty by reason of insanity or has been arrested for any of the disqualifying crimes or is awaiting judicial proceedings, they may be ineligible to obtain an Airport ID Badge. A list of the disqualifying crimes may be found in 49 C.F.R. 1542.209.

#### II-20 Vehicles in the Secured Area

All Contractor employees who are required to drive in the Sterile and Secured Area(s) unescorted to perform their jobs are required to complete a training film on DEN Rules and Regulations as they pertain to overall movement of vehicles in the Sterile and Secured Area(s) and pass a corresponding test to assure understanding of the DEN Rules and Regulations.

All unescorted vehicles must display a current Airport Contractor Vehicle Permit (Permit). Permits are available from Airport Security. An application form must be completed, signed by an Authorized Signatory, and all applicable permit fees must be paid for each Permit requested, and it must be signed by the Authorized Signatory. A Permit is required for each state licensed vehicle, and the vehicle Permit is not transferable.

The Contractor shall purchase and maintain in force a minimum of Ten Million Dollars (\$10,000,000.00) in combined, single-limit automobile insurance for bodily injury and property damage liability per accident or occurrence.

#### II-21 Violations

Any Contractor employer not regulated under 49 C.F.R. Part 1544, Aircraft Operator, will be responsible for payment or reimbursement to DEN of any Civil Penalties imposed by the Transportation Security Administration (TSA) for individual security violations by their employees and/or subcontractor employees for violations under 49 C.F.R. Part 1542.

A Contractor employee may be personally subject to Civil Penalties imposed by TSA for individual security violations committed by Contractor employees and/or subcontractor employees under 49 C.F.R Part 1542.

Everyone who is issued an Airport ID Badge shall comply with all Security Advisories, Rules and Regulations Governing the Denver Municipal Airport System Rules and Regulations, the CEO Directives and DEN Standard Policies and Procedures regarding Airport Safety, Security and Operations. The failure of any individual to comply with such Security Advisories, rules, and directives, etc. will result in the issuance of a Violation Notice and may result in the assessment of a Federal Civil Penalty and/or the denial, suspension, or revocation of their Airport ID Badges. The security status of DEN is subject to change without prior notice. Should the security status of DEN change at any time during the term of the Contract, a written notice shall be issued to the Contractor, detailing all applicable security modifications. The Contractor must take immediate steps to comply with those security modifications.

#### II-22 Diversity and Inclusivity in City Solicitations

Each Bidder shall, as a condition of responsiveness to this solicitation, complete and return the "Diversity and Inclusiveness in City Solicitations Information Request Form" with their Bid.

Using the "Diversity and Inclusiveness in City Solicitations Information Request Form," please state whether your firm has a diversity and inclusiveness program for employment and retention, procurement and supply chain activities, or customer service, and provide the additional information requested on the form. The information provided on the "Diversity and Inclusiveness in City Solicitations Information Request Form" will provide an opportunity for DEN contractors to describe their own diversity and inclusiveness practices. Bidders are not expected to conduct intrusive examinations of its employees, managers, subcontractors, or business partners in order to describe diversity and inclusiveness measures. Rather, DEN simply seeks a description of the Bidder's current practices, if any.

Diversity and Inclusiveness information provided by Bidders in response to DEN solicitations for services or goods will be collated, analyzed, and made available in reports consistent with the Mayor's Executive Order No. 101. However, no personally identifiable information provided by or obtained from Bidders will be in such reports.

For DEN to consider a Bid, Bidders must complete the electronic version of the Diversity and Inclusiveness in City Solicitations Form – then <u>save an electronic copy of the completed form and include the electronic</u> <u>copy as part of its Bid. A Bid or response to a solicitation by a Bidder that does not include this completed</u> <u>form shall be deemed non-responsive.</u> The form is found at:

https://us.openforms.com/Form/57f3a8ea-39b7-4115-be17-1770f38d3cf6

The Diversity and Inclusiveness Form is separate from the requirements established by the DSBO and must always be completed – regardless of whether there are any DSBO goals assigned to this project.

#### II-23 Wage Ordinances

The services being requested in this IFB may involve services that are covered pursuant to Article IV of Chapter 20 of the D.R.M.C., which is designed to address the issue of wage equity and cost of living affordability in the City & County of Denver. Bidder agrees that any contract with DEN shall include a requirement that Bidder will comply with the provisions of D.R.M.C. relating to minimum and prevailing wages, including, but not limited to, paying all covered workers no less than the City Minimum Wage for all covered services rendered in connection with the resulting contract. Additionally, Bidder agrees that the contract shall require compliance with all current and future federal and state laws and City ordinances.

#### II-24 Taxes

 <u>General</u>: Bidders shall refer to the City and County of Denver Department of Aviation Standard Specifications for Construction General Contract Conditions 2011 Edition (General Conditions), G.C. 323 regarding taxes to which Bidder may be subject in performing the Work under this Contract, including but not limited to, sales and use taxes and the Denver Occupational Privilege Tax. The following instructions are to be considered along with the General Conditions – and not in lieu of them.

- 2. <u>Sales and Use Tax</u>: Construction and building materials sold to contractors and subcontractors for use on structures, roads, streets, highways, and other public works owned by the City at DEN are exempt from state, Regional Transportation District (RTD) and Cultural Facilities District sales and use taxes. However, such materials will be subject to sales and use taxes imposed by the City.
- 3. <u>Exemption Certificates Sales and Use Tax</u>: Contractor and Contractor's subcontractors are responsible for applying to apply to the Colorado Department of Revenue (CDOR) for a certificate or certificates of exemption, indicating that their purchase of construction or building materials is for a public project, and to deliver to the City copies of such applications as soon as possible after approval by the CDOR. Bidders shall not include in their Bid amounts the State, RTD and Cultural Facilities District Sales and Use Taxes.
- 4. <u>Denver Occupational Privilege Tax</u>: Any employee working for a Contractor or a subcontractor who earns over Five Hundred Dollars (\$500.00) working in Denver during a calendar month is subject to the payment of the Employee Occupational Privilege Tax. The Contractor and any subcontractor must pay the Business Occupational Privilege Tax for each of its employees who are subject to such tax.

#### II-25 Conformed Technical Specifications and Contract Documents

If applicable, and when Technical Specifications are included and/or referenced herein, Bidder understands that the Technical Specifications and Contract Drawings included in this IFB have been conformed by the City. The conformed Technical Specifications and Contract Drawings were prepared by posting or otherwise incorporating the changes noted in any addendum/addenda into the Technical Specifications and Contract Drawings to form a single set of construction documents.

#### II-26 Site Inspection and Investigations

Prior to submitting its Bid, the Bidder shall inspect the work site and its surroundings. A site visit may be scheduled following the Pre-Bid Conference as indicated herein. For purposes of a Contract, it shall be conclusively presumed that the Bidder has made a thorough inspection of the site and has waived the right to later claim extra payment or time extension(s) for conditions which would have been evident during an inspection or investigation.

Drawings and Specifications which define the Work to be done were prepared on the basis of interpretation by design professionals of information derived from investigations of the work site and site condition data provided by the City. Such information and data are subject to sampling errors, and the interpretation of the information and data depends to a degree on the judgement of the design professional. In view of this, the Bidder is invited to make additional investigations as the Bidder's judgement dictates the need for such investigations.

Because the Bid information cannot be guaranteed, the Contractor shall have assumed the risks attendant to successful performance of the Work, except for the risk of encountering differing site conditions which are defined in the General Conditions and shall never make claim for additional payments or time extensions on the grounds that the nature or amount of Work to be done was not understood by the Bidder at the time of Bid submission.

#### II-27 Materials and Substitutions

It is often convenient and practical to specify materials and equipment to be incorporated into the Work by a proprietary name or by the name of its manufacturer. When so specified and further qualified by the phrases "or equal" or "or equivalent," it shall be understood that such specification is not intended to limit the material and equipment selection process. Rather, the specification is intended to indicate a standard of quality and capability which will be accepted. However, all Bidders desiring to use materials other than the specified materials must obtain the written approval of the Project Manager.

#### Administrative Information

Bidders requesting substitutions will submit a Request for 'or Equal' Approval Form contained herein. All requests for approval of equal or equivalent material shall contain adequate technical data to clearly demonstrate equivalency. Requests containing inadequate or incomplete information will not be reviewed.

Any such Request for 'or Equal' Approval Form must be submitted via email to <u>contract.procurement@flydenver.com</u>, must include in the email Subject line: "Request for Substitution" and the IFB name, and the email must be received no later than ten (10) calendar days before the posted deadline for IFB submittals. All approvals of equal or equivalent materials will be posted to the Contract Procurement website as addendum(s) to ensure full and complete disclosure to all potential Bidders. All requests for approval of equal or equivalent material shall contain adequate technical data to clearly demonstrate equivalency. Incomplete submittals will not be reviewed.

If the Bidder is awarded the Contract and elects to use an 'or equal' that has been added by addendum(s), the Bidder shall be deemed to have warranted that:

- 1. The use of the 'or equal' fulfills the specification requirements contained in this IFB.
- 2. The installation of the 'or equal' will not impact the spatial requirements for the Work or the scheduling of work performed by the City or other contractors.

Additionally, the Bidder agrees that it shall modify any building system(s) (i.e., HVAC, structural, electrical) impacted by the use of an 'or equal' at no cost to the City or any other contractors under contract with the City and shall make no claims for delay or disruption arising out of such 'or equal' modification.

#### II-28 Permit Fees

For the construction of this project, the awarded Contractor agrees to pay the permit fees described in General Condition 317 and in the Special Conditions and Technical Specifications.

#### II-29 Construction Scheduling

The Bidder shall refer to the General Conditions, Special Conditions and Division 013210 of the Technical Specifications for scheduling requirements for this Contract.

#### II-30 Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion

The Bidder certifies, by submission of its Bid or acceptance of this Contract, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible or involuntarily excluded from participation in any government contract by any Federal, State, or local government department or agency. It further agrees by submitting its Bid that it will include this clause without modification in all lower-tier transactions, solicitations, Bids, contracts, and subcontracts. Where the Bidder or any lower-tier participant is unable to certify to this statement, it shall attach an explanation to its Bid.

#### II-31 Bond Requirements

As specified in II-32 and II-33, Bidder is required to provide a Bid Guarantee or Bond, and, if the Contractor is awarded the contract, Payment and Performance Bonds. The City will accept these bonds electronically, including electronic and verifiable signatures and seal from the surety and contractor, or as paper copies with wet signatures. The surety must be authorized to do business in Colorado as a surety and must be on the list of approved sureties of the United States Department of Treasury, Bureau of Fiscal Service.

#### II-32 Bid Guarantee, Bond

As a guarantee of good faith on the part of the Bidder, each IFB must be accompanied by a Bid guarantee consisting of either a certified or cashier's check made payable without condition to the order of the City

#### Page 22 Administrative Information

and County of Denver, or a Bid bond written by an approved corporation surety in favor of the City and County of Denver. If the Bidder's IFB submission is responsive and Bidder is awarded a Contract but fails to either (1) execute a Contract in the form prescribed, (2) furnish the Payment & Performance Bonds described in Title 15 of the General Conditions, (3) furnish the required evidence of insurance described in Title 16 of the General Conditions or in the Special Conditions, or (4) satisfy any other condition precedent to Contract execution within its power within five (5) working days after such notice is made by the City, said Bid guarantee shall be forfeited to the City as liquidated damages and not as a penalty. The Bid guarantee shall be in the amount of five percent (5%) of the Maximum Contract Amount.

A Bid Guarantee form for execution by the Bidder is supplied with each set of contract documents. IF A BID GUARANTEE IS USED, IT MUST BE THE FORM OF BID GUARANTEE SUPPLIED WITH THE CONTRACT DOCUMENTS.

Once the awarded Bidder executes a Contract and delivers to the City satisfactory Performance & Payment Bonds and the required insurance documentation and, if applicable, City Council approval of the Contract, the Bid guarantees of non-awarded Bidders will be returned.

#### II-33 Payment & Performance Bonds

The awarded Contractor will be required to submit Payment and Performance Bonds which guarantees it will fulfill its contractual obligations under this project and guarantees it will pay its subcontractors, material suppliers and/or laborers for any work and materials provided. The amount of the Bonds will be 100% of the Maximum Contract Amount (the full amount of the Bid). Should the awarded Contractor default on its obligations and fails to complete the project, a claims process may be initiated. If Contractor is found to be in breach of the Contract, it must compensate the City up to the full amount of the Bonds. DEN will accept Payment and Performance Bonds electronically, with electronic signatures that conform to City requirements, or as paper copies with wet signatures.

#### II-34 Project Controls Requirements

Bidder will be required to use the designated Project Management Information System (PMIS) as set forth in the Technical Specifications. The PMIS is Design, Engineering & Construction's (DEC's) tool for project and information management, data analysis and document control. DEN will be responsible for providing the licensing and training for PMIS.

#### II-35 Equal Employment Opportunity

- 1. D.R.M.C Article III, Division 2 of Chapter 28 applies to this Project. It is the policy of the City to provide equal opportunity in employment without regard to race, color, creed, sex, national origin, religion, marital status, or political opinion or affiliation. It is hereby deemed and declared to be for the public welfare and in the best interest of the City to require Bidders, contractors and subcontractors soliciting and receiving, directly or indirectly, compensation from or through the City, for the performance of such contracts, to meet certain affirmative action and equal employment opportunity requirements. Additionally, contractors and subcontractors that hold any contracts which are federally assisted shall be required to adhere to the Department of Labor's Contract Compliance program under Executive Order 11246 as defined in the regulations of the Secretary of Labor at 41 C.F.R. Chapter 60-4.
- 2. After the Notice to Apparent Low Bidder has been issued, the Apparent Lowest Bidder shall submit the following to the DSBO:
  - a. A statement that the Bidder shall implement the affirmative action steps set forth in the Rules and Regulations and Bid Conditions of the Manager of Public Works pertaining to Equal Employment Opportunity, attached hereto, or the Bidder's affirmative action plan which

meets these requirements, and

- b. A projection of its anticipated workforce for this contract on the attached "EEO Questionnaire." Both of these submittals are required before the DSBO will approve the Notice to Proceed.
- 3. The Bidder who is awarded this contract shall comply with the provisions and requirements, including the goals of minority and female participation and specific affirmative action steps, set forth in the Rules and Regulations and Bid Conditions of the Manager of Public Works pertaining to Equal Employment Opportunity, as said rules and regulations may be amended or readopted from time to time by the Manager of Public Works or the Director of the Division of Small Business Opportunity.

#### II-36 Conflicts of Interest

An organizational conflict of interest occurs when, because of the relationship between two organizations or one organization (including its subsidiaries or related organizations) performing or proposing for multiple scopes of work, there is or could be in the future a lack of impartiality, impaired objectivity, an unfair advantage over one or more firms competing for the work, or a financial or other interest in other scopes of work.

If the Submitter currently has existing contracts with the City for work at DEN, including any contracts held by Bidder's parent, affiliates, or subsidiary corporations, this could pose a conflict of interest and could place your Bid in jeopardy of being rejected for conflict of interest. If the Bidder believes a conflict of interest may exist but can be mitigated, please describe the steps it proposes that it will take to mitigate the conflict.

If the City identifies a conflict of interest that is not identified by the Bidder in its response, the City may find the Bidder to be non-responsive. If the City identifies a conflict during the course of the contract and the Bidder failed to disclose such conflict, the City may terminate the contract for cause or convenience at the discretion of the City.

#### II-37 <u>Title VI Solicitation Notice</u>

The City, 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 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.

#### II-38 Confidentiality of Records

Documents submitted pursuant to this RFP will be subject to the Colorado Open Records Act, C.R.S. §§ 24-72-201, *et seq*. Information clearly marked as confidential and proprietary will be kept confidential by City, unless otherwise provided by law. City will attempt to notify the Bidder if a request is made for pages of documents clearly marked as confidential and proprietary so that the Bidder may take any action it deems necessary to defend the request. The Proposer, not the City, shall be the entity responsible for defending against Colorado Open Records Act disclosures for any records claimed by the Bidder to be confidential and proprietary.

#### II-39 Denver Construction Careers Program (DCCP)

DEDO/DCCP has reviewed the Runway 17L-35R Wildlife Hazard Mitigation Phase 2 ALL DRAINAGES Project and determined that the project will not have workforce requirements due to the 6-month project duration and based on Section 28-324(b) Paving contracts and work orders.

#### III. PREPARATION OF BID

#### III-1 Preparation of Bid

The Bid shall be submitted in accordance with and meet all requirements set forth in the Bid Forms, which are attached hereto. The Bidder shall fill in all blank spaces in the applicable Bid Forms and initial all interlineations, alterations, or erasures in its Bid. The Bidder shall not delete, modify, or supplement the printed matter on the forms which are included in "Attachment 1, Bid Forms" or make substitutions thereon. The Bidder's completed Bid Forms shall constitute its Bid. It shall be conclusively presumed that the Bidder did, before submitting a Bid, read all addenda, posted decisions and other information items relevant to the IFB that appeared on the BidNet Website.

An authorized representative of the Bidder shall execute Attachment 1 of its Bid Forms – the "Bid Letter."

- 1. If the Bidder is a corporation, it shall upon execution of the Contract provide a certificate from the Secretary of State, showing that it is qualified to do business in the State of Colorado. Please call the Secretary of State for Colorado at (303) 894-2200 for information on obtaining such certification.
- 2. If the Bidder is a partnership, the Bidder must include with its Bid evidence satisfactory to DEN that the partner signing the Bid has the authority to do so.
- 3. If the Bidder is a joint venture, the Bidder shall submit with its Bid a notarized copy of the joint venture agreement. That agreement must describe the scope and amount of work each participant will perform and contain a provision that each participant will be jointly and severally liable to DEN for completing all the work and to third parties for all duties, obligations and liabilities which arise out of the joint venture's performance of the work.

#### III-2 Completing and Signing Bid Forms

Each Bidder shall submit the following, completed, and executed in accordance with the Contract Documents:

- 1. the Bid Forms, including any additional forms required by any addendum;
- 2. the Bidder's Bid Bond or Bid Guarantee in conformance with II-32; and
- 3. the Diversity and Inclusivity in City Solicitations

The Bidder must complete the Bid Forms by legibly writing or printing in ink, words, or figures, or both if required all the Bidder's offered prices for performing the work. All blank spaces which require a response of the Bidder must be properly filled in. In filling out the Bid Forms, the Bidder shall avoid making changes to the extent possible, but, if changes are necessary, any interlineation, white outs, or erasures shall be initialed.

For any contracts containing unit prices, the Bidder shall specify in the Bid Forms a unit price for each item for which a quantity is given and shall write in figures the products of the respective unit prices and quantities in the "Amount" column provided for that purpose.

Each Bidder must sign the Bid Forms and give the Bidder's current business address and contact information as noted. If an individual, the signature must be of the individual offering the bid; if a partnership, the signature must be that of a general partner; and if a joint venture, by each joint venture participant in their individual capacity as a corporation, partnership, or individual; if a corporation, both the president or a vice president and the secretary must sign and the seal of the corporation must be affixed. Signatures of other persons may be acceptable if the Bid contains evidence satisfactory to the CEO to prove that the other persons are authorized to bind the Bidder.

Bidder shall submit its Bid Data Information in accordance with the format shown on each of the Bid Data Forms. Bidder shall prepare and use as many sheets as are necessary to provide the information required. Bidder shall ensure that each page of its Bid Data is completed and properly identified with the Bid Data form name, Bidder's name, and page number.

#### IV. EVALUATION OF BIDS

#### IV-1 BASIS FOR SELECTING THE APPARENT LOW BIDDER

The selection of the Apparent Low Bidder will be made on the basis of the lowest responsive bid by a qualified Bidder whose bid complies with all of the requirements prescribed herein. The lowest Bidder shall be determined by the Lowest Total Base Bid inclusive of Additive Alternate No.1 conforming with all the all the material terms and conditions of the bid documents. If the lowest total Base Bid inclusive of Additive Alternate No. 1 is in excess of the Owner's maximum intended Construction budget range, then the Owner may elect to make award to the responsible bidder whose base bid not inclusive of Additive Alternate No. 1 conforming with all the material terms and conditions of the bid documents is the lowest price. This selection shall be subject to the approval of such resulting contract in accordance with the Charter and ordinances of the City and County of Denver.

For the purposes of this project and bid process, the base bid shall include all work defined for Schedules I, II, III, IV, V and VI and Additive Alternate No. 1 shall include all work defined for Schedules VII and VIII.

#### IV-2 SUBMITTAL OF BIDS

There will be no live bid opening for this project or acceptance of bids in person or by mail. Bids shall be submitted electronically via the BidNet website at: https://www.bidnetdirect.com/colorado/cityandcountyofdenverdepartmentofaviation

DEN will accept bid bonds electronically, with electronic and verifiable signatures and seal from the surety and contractor, or as paper copies with wet signatures. The surety must be authorized to do business in Colorado as a surety and must be on the list of approved sureties of the United States Department of the Treasury, Bureau of the Fiscal Service. Paper copies of bond may be submitted to the following address:

Airport Office Building ATTN: Diane Folken, Contract.Procurement@flydenver.com Denver International Airport 8500 Peña Blvd., Room 8810 Denver, CO 80249-6340 Note IFB#202476290, RWY 17L-35R Wildlife Hazard Mitigation Phase 2 on the envelope.

#### IV-3 UNACCEPTABLE BIDS

The City will not accept Bids from Bidders in arrears to the City upon debt or contract, or which are defaulters (as surety or otherwise) upon any obligation to the City, or that are deemed irresponsible or unreliable by the CEO. A history or pattern of litigation against the City by any Bidder, proposed subcontractor, interested party, or any person, firm, or corporation affiliated with any Bidder, among other items, will be considered by the CEO in determining the responsibility and reliability of Bidders. Bidders may be required to submit satisfactory evidence that they have a practical knowledge of the particular work bid upon and that they have the necessary financial resources to complete the proposed work.

#### IV-4 ONLY ONE BID ACCEPTED

The City will accept only one (1) Bid for the same work from any one Bidder. This includes Bids that may be submitted under different names by one firm or corporation. Evidence of collusion among Bidders shall be grounds for exclusion of any Bidder who is a participant in any such collusion.

#### IV-5 CONSIDERATION OF BIDS

After the Bids are opened and read and any discrepancies have been reviewed, bids will be compared based on the Total Contract Bid Amount written on Attachment 1, Page 1 of the Bid Letter.

If a discrepancy exists between a price or amount written in words and the price or amount written in figures, the price or amount written in words shall govern, except that in the case where a price or amount shown in figures has been crossed out and replaced with a new, legible, initialed figure, the initialed figure shall govern.

Any bid discrepancies which the City corrects in accordance with the general rules described above shall be corrected with the understanding that the Apparent Low Bidder waives any claims against the City because of the Bidder's mistakes in its bid.

The City reserves the right to waive informalities, to reject any and all bids, and to advertise for new bids where it is in the best interest of the City. The City also reserves the right to negotiate terms of the Contract.

#### IV-6 INFORMAL AND UNBALANCED BIDS

Bids shall be considered informal and may be rejected for the following reasons:

- 1. If the bid is on a form other than the Bid Forms furnished by the City, or if the form is altered or any part thereof is detached.
- 2. If there are unauthorized additions, conditional or alternate bids, or irregularities of any kind which may tend to make the bid incomplete, indefinite, or ambiguous.
- 3. If the Bidder fails to acknowledge in the bid receipt of any or all addenda current on the date of opening of bids.
- 4. If the bid does not contain a unit price or lump sum amount for each item listed except in the case of authorized alternative items.
- 5. If there is an interlineation, white out, or erasure in the Bid Forms.
- 6. If the bid is unbalanced so that (1) each pay item does not reasonably carry its own proportion of cost, or (2) any pay item contains an inadequate or unreasonable price.

#### IV-7 NOTICE TO APPARENT LOW BIDDER – EXECUTION OF CONTRACT

The Apparent Lowest Bidder will be given written notice of such status on the form included in the Bid Documents within ninety (90) days from the date of opening of bids.

The Apparent Low Bidder shall provide required bonds and insurance forms within ten (10) business days from and including the date of the Notice to Apparent Low Bidder. Documents shall be submitted by mail or electronically to Surety2000 with the subject line "RWY 17L-35R Wildlife Hazard Mitigation Phase 2, IFB 202476290, Bonds and Insurance." When the required bonds and insurance certificates are received, approval for the City to contract with the Apparent Low Bidder shall be sought in accordance with the Charter of the City and County of Denver. Such notice shall not create any rights in the Apparent Low Bidder to any contract with the City.

#### END OF INSTRUCTIONS TO BIDDERS

#### V. <u>ATTACHMENT 1, BID FORMS</u> Attachment 1, Part 1 Bid Acknowledgement Letter

CONTRACT NAME: Runway 17L-35R Wildlife Hazard Mitigation Phase 2 ALL DRAINAGES

Contract No.: 202476290

Bid Letter

BIDDER\_\_\_\_\_

Chief Executive Officer Contract Procurement Office Airport Office Building, Room 8810 Denver International Airport 8500 Peña Boulevard Denver, Colorado 80249

This letter is in response to the Notice of Invitation for Bids first published on November 12, 2024, for Contract No. 202476290, DEN's Runway 17L-35R Wildlife Hazard Mitigation Phase 2 ALL DRAINAGES.

This contract is to mitigate standing water and associated vegetative growth within the identified areas which act as wildlife attractants in the vicinity of the Runway 17L-35R complex in accordance with the Wildlife Hazard Management Plan. Wildlife strikes for this complex have been recorded at a rate of two to three times those of other DEN Runway complexes. The intent of this specific phase is to address drainage issues in the remaining seven (7) of nine (9) areas that were identified across the east airfield, specifically near the Runway 17L-35R complex.

The undersigned Bidder declares that it has carefully examined the location of the proposed work and has carefully read and examined all of the Contract Documents which include, but are not limited to, the Contract Drawings, Technical Specifications, Construction Contract General Conditions, Special Conditions, Instruction to Bidders, and EEO provisions, and hereby proposes to furnish all labor, materials, equipment, tools, transportation and services, and to discharge all duties and obligations necessary and required to perform and complete the Work as required in the Contract Documents which are provided herewith and by this reference made a part hereof for the prices shown in the bid forms and totaled below:

| TOTAL BASE BID Am  | ount:   | Dollars                                  |  |
|--------------------|---|--|--|
| and                | Cents   |  |  |
| (\$                | ).  |  |  |
| Add Alternate #1:  |   | Dollars                                  |  |
| and                | Cents   |  |  |
| (\$                | ).  |  |  |
| The undersigned ac | knowledges receipt, understanding and full consid | leration of the following addenda to the |  |

The undersigned acknowledges receipt, understanding and full consideration of the following addenda to the Contract Documents:

Addenda Nos.: \_\_\_

The undersigned agrees that this Bid is a firm offer to the City to perform and complete the Contract described above which cannot be withdrawn for one hundred twenty (120) calendar days after the bids are opened or until after a contract for the work described in these bid documents is fully executed by the City, whichever date is earlier.

The undersigned Bidder hereby agrees to appear at Denver International Airport, Business Management Services Office, Room 8810, Airport Office Building, at any time within ten (10) business days from the date of a written notice from the CEO to do so, mailed, emailed, or faxed to the business address of Bidder and at that time the Bidder shall: (1) deliver an executed Contract which conforms with this bid; (2) furnish the required performance and payment bonds in the sum of the Total Contract Bid Amount shown above, executed by a surety company acceptable to the CEO; and (3) furnish the required insurance documents.

Enclosed herewith is a bid guarantee, as defined in the Instructions to Bidders, in the amount of which bid guarantee the undersigned Bidder agrees is to be paid to and become the property of the City as liquidated damages should the bid be considered to be the best by the City and the undersigned Bidder notified that it is the apparent low Bidder and it fails to enter into contract in the form prescribed and to furnish the required performance and payment bonds and evidences of insurance within ten (10) business days as stipulated above.

Attached and incorporated herein are the proposed Schedule of Prices and Quantities and Bid Data Forms. All of the forms must be completed. Bidder acknowledges that the City may incorporate, at its option, any or all of the data submitted by the Bidder into a contract arising out of this Bid.

The undersigned Bidder acknowledges the right of the City to waive informalities in the bids, to reject any or all bids submitted, and to re-advertise for bids.

The undersigned certifies that it has examined and is fully familiar with all of the provisions of the Contract Documents and is satisfied that they are accurate; that it has carefully checked all words and figures and all statements made in these Bid forms; and that it has satisfied itself with respect to the actual site conditions and the nature and location of the Work, the general and local conditions which may be encountered in the performance of the Work, and other matters which in any way affect the Work or the cost thereof.

[CERTIFICATION AND SIGNATURE ON FOLLOWING PAGES]

This bid is submitted upon the declaration that neither, I (we), nor, to the best of my (our) knowledge, none of the members of my (our) firm or company have either directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with this Bid.

| Dated this day of                            | , 2024.               |
|--|-----------------------|
| BUSINESS ADDRESS OF BIDDER:                  |                       |
| City, State, Zip Code:                       |                       |
| Telephone Number of Bidder:                  | ()                    |
| Social Security or Employer Id. No. of Bidde | r:                    |
| Email Address:                               |                       |
| SIGNATURE OF BIDDER:                         |                       |
|  | PRINT NAME OF BIDDER: |
|  |                       |
| Attest:                                      |                       |
| (Corporate Seal)                             |                       |
|  | By:                   |
| Secretary                                    | President             |

#### Attachment 1, Part 2 Disclosure of Legal and Administrative Proceedings and Financial Condition

#### City and County of Denver Denver International Airport (Please use this form)

If no disclosure required in accordance with II-13, please sign affirmation statement.

The undersign affirms that \_\_\_\_\_\_(Bidder) has not been involved in any legal or administrative proceedings which involve a claim in excess of Fifty Thousand Dollars (\$50,000.00); has not filed bankruptcy within the last ten (10) years; has not been debarred or suspended from bidding/proposing on any Federal, State or local government procurements; and neither the Bidder nor its key employees have been convicted of a Bid/Bid-related crime, violation or felony in the last five (5) years.

| Signature  | _ Title |
|------------|---------|
| Print Name |         |
| Date       |         |

If disclosure is required in accordance with II-13, please use the following space to provide information. If additional space is needed, please attach additional pages.

| <u>Attac</u> | hment 1, Part 3 Contract Information                                  |  |
|--------------|---|--|
| 1.           | Name of Bidder/Contractor:  |  |
| 2.           | Bid must be signed by all joint ventue                                | nt venture, give full names of all partners or joint venturers<br>rers. If Bidder is an LLC, bid must be signed by authorized<br>manager if LLC allows management by members). |
| 3.           | Prequalified by City and County of Denver as Construction Contractor: | Categories:  |
|              |   | Monetary Limit: <u>\$</u>  |
| 4.           | Address of Contractor:  |  |
|              |   |  |
|              | Telephone:  | Email Address:   |
| 5.           | Established where and when:   |  |
| 6.           | Contractor's Banks:   |  |
| 7.           | Principal Officers of Contractor (mana                                | gers and members if LLC):  |
| Nam          | e:  | Name:  |
| Title        | :   | Title:   |
| Nam          | e:  | Name:  |
| Title        | :   | Title:   |
| 8.           | Bidder's/Contractor's City and County on Denver Contractor License:   | of License No.:  |
|              |   | Class:   |

A contractor license is required prior to start of construction but not prior to bid submittal.

9. Bidder's/Contractor's state of incorporation (state of organization if LLC/partnership):

| 10. | Bidder's Surety:  |  |
|-----|---|--|
| 11. | Surety's State of Incorporation:                                |  |
| 12. | Address of Contractor in other areas (if different from No. 4): |  |
| 13. | Name and address of person to receive payments:                 |  |
|     |   |  |

- 14. If the Bidder/Contractor is a joint venture, it shall attach a certified copy of the joint venture agreement. The joint venture agreement will not be included as a Contract Document.
- 15. The Bidder/Contractor shall identify all applicable labor agreements (if any) to be used in the performance of the Work:

16. References (Provide three professional references below):

| 1. Company Name: |
|------------------|
| Contact:         |
| Project Title:   |
| Email:           |
| Phone Number:    |
|                  |
| 2. Company Name: |
| Contact:         |
| Project Title:   |
| Email:           |
| Phone Number:    |
|                  |
| 3. Company Name: |
| Contact:         |
| Project Title:   |
| Email:           |
| Phone Number:    |

#### CERTIFICATION

The undersigned certifies that to the best of his/her knowledge, the information presented in this Bid Data Form is a statement of fact and that the Bidder has the financial capability to perform the Work described in the Bidder's submission.

| Signature  | <br>Title |  |
|------------|-----------|--|
|            |           |  |
| Print Name |           |  |
|            |           |  |
| Date       |           |  |
|            |           |  |
|            |           |  |

#### Attachment 1, Part 4 Certification of Non-Segregated Facilities

The Bidder must certify 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 further 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 certifies further 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 in this contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, parking lots, drinking fountains, recreation or entertainment areas, transportation and housing facilities provided for employees which are segregated by explicit directive or are in fact 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 certification from proposed subcontractors for specific time period) it will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding Ten Thousand Dollars (\$10,000) which are not exempt from the provisions of the equal opportunity clause and that it will retain such certification in its files.

Dated: \_\_\_\_\_

Bidder Company Name: \_\_\_\_\_

By: \_\_\_\_\_

Title: \_\_\_\_\_

#### Attachment 1, Part 5 Equal Opportunity Report Statement

The Bidder shall review, complete, sign and submit with its Bid this Equal Opportunity Report Statement (Statement). A Bid may be considered unresponsive and may be rejected, in the City's sole discretion, if the Bidder fails to provide the fully executed Statement or fails to furnish required data. The Bidder shall also, prior to award, furnish such other pertinent information regarding its own employment policies and practices as well as those of its proposed subcontractors as the FAA, the Owner or the Executive Vice Chairman of the President's Committee may require.

The Bidder shall furnish similar Statements executed by each of its first tier and second-tier subcontractors and shall obtain similar compliance by such subcontractors before awarding subcontracts. No subcontract shall be awarded to any non-complying subcontractor.

Equal Opportunity Report Statement as Required in 41 C.F.R. 60-1.7(b)

The Bidder shall complete the following statements by checking the appropriate blanks. Failure to complete these blanks may be grounds for rejection of Bid:

- 1. The Bidder has \_\_\_\_ has not \_\_\_\_ developed and has on file at each establishment affirmative action programs pursuant to 41 C.F.R. 60-1.40 and 41 C.F.R. 60-2.
- 2. The Bidder has \_\_\_\_ has not \_\_\_\_ participated in any previous contract or subcontract subject to the equal opportunity clause prescribed by Executive Order No. 11246, as amended.
- 3. The Bidder has \_\_\_\_ has not \_\_\_\_ filed with the Joint Reporting Committee the annual compliance report on Standard Form 100 (EEO-1 Report).
- 4. The Bidder does \_\_\_\_\_ does not \_\_\_\_\_ employ fifty (50) or more employees.

Dated: \_\_\_\_\_

Bidder Company: \_\_\_\_\_

By:

Title: \_\_\_\_\_\_

#### Attachment 1, Part 6 Bid Bond

Bidder\_\_\_\_\_

#### DENVER INTERNATIONAL AIRPORT

#### RWY 17L-35R Wildlife Hazard Mitigation Ph 2 All Drainages Contract No. 202476290

#### Bid Bond

| KNOW ALL MEN BY THESE PRESENTS           | S THAT              |   | as Principal, and    |
|--|---------------------|---|----------------------|
|  | , a corporatior     | n organized and existing under and b    | y virtue of the laws |
| of the State of                          | , and authorized to | do business within the State of Colo    | rado as Surety, are  |
| held and firmly bound unto the City a    | and County of Denv  | ver, Colorado, as Obligee, in the fu    | Ill and just sum of  |
| Dolla                                    | ars and             | Cents (\$                               | )                    |
| lawful money of the United States, for   | the payment of whi  | ich sum, well and truly to be made,     | we bind ourselves,   |
| our heirs, executors, administrators, su | ccessors and assign | s, jointly and severally, firmly by the | se presents:         |

WHEREAS, the said Principal is herewith submitting its Bid, dated on \_\_\_\_\_\_, \_\_\_\_, for the construction of Contract No. 202476290, RWY 17L-35R Wildlife Hazard Mitigation Ph 2 All Drainages, DEN, as set forth in detail in the contract documents for the City and County of Denver, Colorado, and said Obligee has required as a condition for receiving said Bid that the Principal deposit specified bid security in the amount of not less than five percent (5%) of the amount of said Bid, as it relates to work to be performed for the City, conditioned that in event of failure of the Principal to execute the Contract for such construction and furnish required Performance and Payment Bond if the Contract is offered them, that said sum be paid immediately to the Obligee as liquidated damages, and not as a Penalty, for the Principal's failure to perform.

The condition of this obligation is such that if the aforesaid Principal shall, within the period specified therefor, on the prescribed form presented to them for signature, enter into a written Contract with the Obligee in accordance with his bid as accepted, and give Performance and Payment Bond with good and sufficient surety or sureties, upon the form prescribed by the Obligee, for the faithful performance and the proper fulfillment of said Contract, or in the event of withdrawal of said bid within the time specified, or upon the payment to the Obligee of the sum determined upon herein, as liquidated damages and not as a Penalty, in the event the Principal fails to enter into said Contract and give such Performance and Payment Bond within the time specified, then this Obligation shall be null and void, otherwise to remain in full force and effect.

[END OF PAGE]

| Signed, sealed, and delivered this | day of | , |
|------------------------------------|--------|---|
|------------------------------------|--------|---|

Attest:

PRINCIPAL

Secretary

[SEAL if Bidder a corporation]

Ву:\_\_\_\_\_

President

SURETY

By:\_\_\_\_\_

Attorney-in-Fact

(ATTACH POWER OF ATTORNEY)

Power of Attorney shall be certified as to the date of bid.

Attachment 1, Part 7 Schedule of Prices and Quantities

# SCHEDULE OF PRICES AND QUANTITIES

The Bid forms which apply to this contract are contained in the pages immediately following this page.

These pages are not included in the page numbering of this contract document.

#### BID PROPOSAL SUMMARY RUNWAY 17L-35R WILDLIFE HAZARD MITIGATION - PHASE 2 ALL DRAINAGE

| BIDDER NAME:  |                               |
|---|-------------------------------|
|   | SCHEDULE AMOUNT (IN NUMBERS): |
| SCHEDULE I TOTAL  | \$                            |
| SCHEDULE II TOTAL   | \$                            |
| SCHEDULE III TOTAL  | \$                            |
| SCHEDULE IV TOTAL   | \$                            |
| SCHEDULE V TOTAL  | \$                            |
| SCHEDULE VI TOTAL   | \$                            |
| SCHEDULE VII TOTAL  | \$                            |
| SCHEDULE VIII TOTAL   | \$                            |
| TOTAL BASE BID NOT INCLUSIVE OF<br>ADDITIVE ALTERNATE NO. 1<br>(SCHEDULES I + II + III + IV + V + VI) | \$                            |
| TOTAL ADDITIVE ALTERNATE NO. 1<br>(SCHEDULES VII + VIII)  | \$                            |
| TOTAL BASE BID INCLUSIVE OF<br>ADDITIVE ALTERNATE NO. 1<br>(SCHEDULES I to VIII)                      | \$                            |

NOTE: FOR PURPOSES OF THIS PROJECT AND BID PROCESS, THE BASE BID SHALL INCLUDE ALL WORK DEFINED FOR SCHEDULES I, II, III, IV, V, AND VI AND ADDITIVE ALTERNATE NO. 1 SHALL INCLUDE ALL WORK DEFINED FOR SCHEDULES VII AND VIII.

## UNIT PRICE BID FORMS - SCHEDULE I

| Base | Base Bid - Schedule I: Work Area 1 |   |      |          |    |                        |    |                       |
|------|------------------------------------|---|------|----------|----|------------------------|----|-----------------------|
| ITEM | SPEC NO.                           | DESCRIPTION   | UNIT | QUANTITY |    | INIT PRICE<br>NUMBERS) |    | TAL PRICE<br>NUMBERS) |
|      |                                    |   |      |          |    | INUMBERO               |    | NOWIDER(S)            |
|      |                                    |   |      |          |    |                        |    |                       |
| 1    | 018133a                            | Sustainable ENVISION Requirements                         | LS   | 1        | \$ | -                      | \$ | -                     |
|      |                                    |   |      |          |    |                        |    |                       |
|      |                                    |   |      |          |    |                        |    |                       |
| 2    | IB-31a                             | Textura Fee (with 4.31% Tax)                              | AL   | 1        | \$ | 21,221.00              | \$ | 21,221.00             |
|      |                                    |   |      |          |    |                        |    |                       |
|      |                                    |   |      |          |    |                        |    |                       |
| 3    | 013223.11a                         | Construction As-Built Survey (BIM)                        | LS   | 1        | \$ | -                      | \$ | -                     |
|      |                                    |   |      |          |    |                        |    |                       |
|      |                                    |   |      |          |    |                        |    |                       |
| 4    | 015525a                            | Traffic Control   | LS   | 1        | \$ | -                      | \$ | -                     |
|      |                                    |   |      |          |    |                        |    |                       |
| _    | 0455056                            | Gate Guard  | HR   | 4 000    | ¢  |                        | ¢  |                       |
| 5    | 015525b                            |   | пк   | 1,200    | \$ | -                      | \$ | -                     |
|      |                                    |   |      |          |    |                        |    |                       |
| 6    | 015525c                            | Gate Guard Shack  | LS   | 1        | \$ | -                      | \$ | _                     |
|      | 0100200                            |   |      |          | Ψ  |                        | Ψ  |                       |
|      |                                    |   |      |          |    |                        |    |                       |
| 7    | 015719a                            | Temporary Erosion Control                                 | LS   | 1        | \$ | -                      | \$ | -                     |
|      |                                    |   |      |          |    |                        |    |                       |
|      |                                    |   |      |          |    |                        |    |                       |
| 8    | C-105a                             | Mobilization (5%)   | LS   | 1        | \$ | -                      | \$ | -                     |
|      |                                    |   |      |          |    |                        |    |                       |
|      |                                    |   |      |          |    |                        |    |                       |
| 9    | P-101a                             | Remove Existing Riprap                                    | SY   | 80       | \$ | -                      | \$ | -                     |
|      |                                    |   |      |          |    |                        |    |                       |
|      |                                    |   |      |          |    |                        |    |                       |
| 10   | P-101b                             | Remove Existing Security Fence                            | LF   | 80       | \$ | -                      | \$ | -                     |
|      |                                    |   |      |          |    |                        |    |                       |
| 44   | D 101a                             | Remove Existing Headwall, Wingwalls, &<br>Apron, Complete | LS   | 4        | ¢  |                        | ¢  |                       |
| 11   | P-101c                             |   | 13   | 1        | \$ | -                      | \$ | -                     |

### UNIT PRICE BID FORMS - SCHEDULE I

| Base | Base Bid - Schedule I: Work Area 1 |   |      |             |              |              |  |
|------|------------------------------------|---|------|-------------|--------------|--------------|--|
| ITEM | SPEC NO.                           | DESCRIPTION   | UNIT | QUANTITY    | UNIT PRICE   | TOTAL PRICE  |  |
|      |                                    |   | •    | <b>Q0</b> , | (IN NUMBERS) | (IN NUMBERS) |  |
| 12   | P-101d                             | Remove Existing Apron, Protect<br>Headwall & Wingwalls                  | LS   | 1           | \$-          | \$-          |  |
|      |                                    |   |      |             |              |              |  |
| 14   | P-152a                             | Unclassified Excavation   | CY   | 1,470       | \$-          | \$-          |  |
| 15   | P-152b                             | Unsuitable Excavation   | СҮ   | 440         | \$-          | \$-          |  |
| 16   | P-152c                             | Embankment (Borrow)   | CY   | 3,390       | \$-          | \$ -         |  |
| 17   | P-304Ca                            | Construct Unpaved CDOT Class 6<br>Service Road, Complete                | SY   | 2,300       | \$-          | \$-          |  |
| 18   | P-304Cb                            | Crushed Aggregate Base Course, CDOT<br>Class 6                          | CY   | 720         | \$-          | \$-          |  |
| 19   | D-701a                             | Dual 36-Inch Culvert Extension, Class III<br>RCP (Complete In Place)    | LF   | 33          | \$-          | \$ -         |  |
| 23   | D-710a                             | Riprap, Type "M", Grouted   | SY   | 480         | \$-          | \$-          |  |
| 24   | D-752a                             | Concrete Trickle Channel, Complete                                      | LF   | 605         | \$-          | \$ -         |  |
| 25   | D-752b                             | Headwall, Wingwalls & Apron for Dual 36-<br>Inch Pipe Culvert, Complete | EA   | 1           | \$-          | \$ -         |  |
| 26   | D-752c                             | 36-Inch Culvert Security Grate,<br>Complete                             | EA   | 2           | \$-          | \$-          |  |

### UNIT PRICE BID FORMS - SCHEDULE I

| Base | Base Bid - Schedule I: Work Area 1 |  |      |          |                            |                             |  |  |
|------|------------------------------------|--|------|----------|----------------------------|-----------------------------|--|--|
| ITEM | SPEC NO.                           | DESCRIPTION                                      | UNIT | QUANTITY | UNIT PRICE<br>(IN NUMBERS) | TOTAL PRICE<br>(IN NUMBERS) |  |  |
| 27   | D-752d                             | 36-Inch Culvert Exclusion Device,<br>Complete    | EA   | 2        | \$-                        | \$-                         |  |  |
| 33   | F-162a                             | Chain Link Security Fence, Complete              | LF   | 80       | \$-                        | \$-                         |  |  |
| 34   | F-162b                             | Temporary Chain Link Security Fence,<br>Complete | LF   | 160      | \$-                        | \$-                         |  |  |
| 35   | F-163a                             | Wildlife Deterrent Fence Skirt, Complete         | LF   | 80       | \$-                        | \$ -                        |  |  |
| 36   | T-901a                             | Seeding  | AC   | 9.0      | \$-                        | \$-                         |  |  |
| 37   | T-905a                             | Topsoil (Removed, Stockpiled and<br>Replaced)    | SY   | 59,100   | \$-                        | \$ -                        |  |  |
| 38   | T-908a                             | Hydraulic Mulching                               | AC   | 9.00     | \$-                        | \$-                         |  |  |

#### BASE BID - SCHEDULE I TOTAL AMOUNT:

\$ 21,221.00

### UNIT PRICE BID FORMS - SCHEDULE II

| Base | se Bid - Schedule II: Work Area 2 |   |      |          |        |               |       |          |  |
|------|-----------------------------------|---|------|----------|--------|---------------|-------|----------|--|
| ITEM | SPEC                              | DESCRIPTION   | UNIT | QUANTITY |        | <b>FPRICE</b> |       | AL PRICE |  |
|      |                                   |   |      |          | (IN NU | JMBERS)       | (IN N | UMBERS)  |  |
|      |                                   |   |      |          |        |               |       |          |  |
|      |                                   |   |      |          |        |               |       |          |  |
| 3    | 013223.11a                        | Construction As-Built Survey (BIM)                        | LS   | 1        | \$     | -             | \$    | -        |  |
|      |                                   |   |      |          |        |               |       |          |  |
|      |                                   |   |      |          |        |               |       |          |  |
| 4    | 015525a                           | Traffic Control   | LS   | 1        | \$     | -             | \$    | -        |  |
|      |                                   |   |      |          |        |               |       |          |  |
|      |                                   |   |      |          |        |               |       |          |  |
| 7    | 015719a                           | Temporary Erosion Control                                 | LS   | 1        | \$     | _             | \$    |          |  |
|      | 0107194                           |   |      |          | Ψ      | -             | Ψ     | -        |  |
|      |                                   |   |      |          |        |               |       |          |  |
|      | <b>a</b> / <b>a</b> =             |   |      |          |        |               |       |          |  |
| 8    | C-105a                            | Mobilization (5%)   | LS   | 1        | \$     | -             | \$    | -        |  |
|      |                                   |   |      |          |        |               |       |          |  |
|      |                                   |   |      |          |        |               |       |          |  |
| 9    | P-101a                            | Remove Existing Riprap                                    | SY   | 220      | \$     | -             | \$    | -        |  |
|      |                                   |   |      |          |        |               |       |          |  |
|      |                                   |   |      |          |        |               |       |          |  |
| 10   | P-101b                            | Remove Existing Security Fence                            | LF   | 80       | \$     | -             | \$    | -        |  |
|      |                                   |   |      |          |        |               |       |          |  |
|      |                                   |   |      |          |        |               |       |          |  |
| 11   | P-101c                            | Remove Existing Headwall, Wingwalls,<br>& Apron, Complete | LS   | 1        | \$     | _             | \$    |          |  |
|      | F-101C                            |   |      |          | φ      | -             | ψ     | -        |  |
|      |                                   |   |      |          |        |               |       |          |  |
|      |                                   | Remove Existing Apron, Protect                            |      |          |        |               |       |          |  |
| 12   | P-101d                            | Headwall & Wingwalls                                      | LS   | 1        | \$     | -             | \$    | -        |  |
|      |                                   |   |      |          |        |               |       |          |  |
| 1    |                                   |   |      |          |        |               |       |          |  |
| 14   | P-152a                            | Unclassified Excavation                                   | CY   | 1,240    | \$     | -             | \$    | -        |  |
|      |                                   |   |      |          |        |               |       |          |  |
|      |                                   |   |      |          |        |               |       |          |  |
| 15   | P-152b                            | Unsuitable Excavation                                     | CY   | 450      | \$     | -             | \$    | -        |  |
|      |                                   |   |      |          |        |               |       |          |  |
|      |                                   |   |      |          |        |               |       |          |  |
| 17   | P-304Ca                           | Construct Unpaved CDOT Class 6<br>Service Road, Complete  | SY   | 530      | \$     |               | \$    |          |  |
| 17   | г-3040a                           |   | ST   | 530      | φ      | -             | φ     | -        |  |

### UNIT PRICE BID FORMS - SCHEDULE II

| Base | Bid - Sch | edule II: Work Area 2                         |      |          |         |        |        |        |
|------|-----------|---|------|----------|---------|--------|--------|--------|
| ITEM | SPEC      | DESCRIPTION                                   | UNIT | QUANTITY | UNIT F  |        |        |        |
|      |           |   |      |          | (IN NUN | IBERS) | (IN NU | MBERS) |
|      |           |   |      |          |         |        |        |        |
|      |           | Crushed Aggregate Base Course, CDOT           |      |          |         |        |        |        |
| 18   | P-304Cb   | Class 6                                       | CY   | 730      | \$      | -      | \$     | -      |
|      |           |   |      |          |         |        |        |        |
|      |           | Dual 36-Inch Culvert Extension, Class III     |      |          |         |        |        |        |
| 19   | D-701a    | RCP (Complete In Place)                       | LF   | 33       | \$      | -      | \$     | -      |
|      |           |   |      |          |         |        |        |        |
|      |           |   |      |          |         |        |        |        |
| 22   | D-705a    | Porous Backfill, Weir Structure Interface     | LF   | 60       | \$      | -      | \$     | -      |
|      | Brood     |   |      |          | Ŷ       |        | Ŷ      |        |
|      |           |   |      |          |         |        |        |        |
| 23   | D-710a    | Riprap, Type "M", Grouted                     | SY   | 560      | <u></u> |        | ¢      |        |
| 23   | D-710a    |   | 51   | 560      | \$      | -      | \$     | -      |
|      |           |   |      |          |         |        |        |        |
|      |           |   |      |          |         |        |        |        |
| 24   | D-752a    | Concrete Trickle Channel, Complete            | LF   | 618      | \$      | -      | \$     | -      |
|      |           |   |      |          |         |        |        |        |
|      |           | Headwall, Wingwalls & Apron for Dual          |      |          |         |        |        |        |
| 25   | D-752b    | 36-Inch Pipe Culvert, Complete                | EA   | 1        | \$      | -      | \$     | -      |
|      |           |   |      |          |         |        |        |        |
|      |           | 36-Inch Culvert Security Grate,               |      |          |         |        |        |        |
| 26   | D-752c    | Complete                                      | EA   | 2        | \$      | -      | \$     | -      |
|      |           |   |      |          |         |        |        |        |
|      |           | 20 kash Outvart Evaluation Davias             |      |          |         |        |        |        |
| 27   | D-752d    | 36-Inch Culvert Exclusion Device,<br>Complete | EA   | 2        | \$      | -      | \$     | -      |
|      | 2.024     |   |      | 2        | *       |        | Ť      |        |
|      |           |   |      |          |         |        |        |        |
| 22   | F-162a    | Chain Link Security Fence, Complete           | LF   | 00       | ¢       |        | ¢      |        |
| 33   | r-102a    | Chain Link Security Fence, Complete           | LF   | 80       | \$      | -      | \$     | -      |
|      |           |   |      |          |         |        |        |        |
|      |           | Temporary Chain Link Security Fence,          |      |          |         |        |        |        |
| 34   | F-162b    | Complete                                      | LF   | 160      | \$      | -      | \$     | -      |
|      |           |   |      |          |         |        |        |        |
|      |           |   |      |          |         |        |        |        |
| 35   | F-163a    | Wildlife Deterrent Fence Skirt, Complete      | LF   | 80       | \$      | -      | \$     | -      |

### UNIT PRICE BID FORMS - SCHEDULE II

| Base | Base Bid - Schedule II: Work Area 2 |   |      |          |                            |                             |  |  |  |  |
|------|-------------------------------------|---|------|----------|----------------------------|-----------------------------|--|--|--|--|
| ITEM | SPEC                                | DESCRIPTION                                   | UNIT | QUANTITY | UNIT PRICE<br>(IN NUMBERS) | TOTAL PRICE<br>(IN NUMBERS) |  |  |  |  |
|      |                                     |   |      |          |                            |                             |  |  |  |  |
|      |                                     | <b>.</b>                                      |      |          |                            |                             |  |  |  |  |
| 36   | T-901a                              | Seeding                                       | AC   | 2.0      | \$-                        | \$-                         |  |  |  |  |
| 37   | T-905a                              | Topsoil (Removed, Stockpiled and<br>Replaced) | SY   | 17,100   | \$ -                       | \$ -                        |  |  |  |  |
|      |                                     |   |      |          |                            |                             |  |  |  |  |
| 38   | T-908a                              | Hydraulic Mulching                            | AC   | 2.0      | \$-                        | \$-                         |  |  |  |  |

#### BASE BID - SCHEDULE II TOTAL AMOUNT:

\$

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### UNIT PRICE BID FORMS - SCHEDULE III

| ITEM     SPEC NO.     DESCRIPTION     UNIT     QUANTITY     (IN NUMBERS)     (IN NUMBERS)       3     013223.11a     Construction As-Built Survey (BIM)     LS     1     \$     -     \$       4     015525a     Traffic Control     LS     1     \$     -     \$       7     015719a     Temporary Erosion Control     LS     1     \$     -     \$       8     C-105a     Mobilization (5%)     LS     1     \$     -     \$       9     P-101a     Remove Existing Riprap     SY     80     \$     -     \$       10     P-101b     Remove Existing Security Fence     LF     80     \$     \$     \$       11     P-101c     Remove Existing Apron, Protect     LS     1     \$     \$     \$       12     P-101d     Headwall & Wingwalls     LS     1     \$     \$     \$       14     P-152a     Unclassified Excavation     CY     1,920     \$     \$     \$       15     P-152b     Unsuitable Excavation     CY     460     \$     \$     \$  | Base | Base Bid - Schedule III: Work Area 3 |                                    |      |          |              |              |  |  |  |  |
|---|------|--------------------------------------|------------------------------------|------|----------|--------------|--------------|--|--|--|--|
| 3         013223.11a         Construction As-Built Survey (BIM)         LS         1         \$         -         \$         -           4         015525a         Traffic Control         LS         1         \$         -         \$         -           7         015719a         Temporary Erosion Control         LS         1         \$         -         \$         -           8         C-105a         Mobilization (5%)         LS         1         \$         -         \$         -           9         P-101a         Remove Existing Riprap         SY         80         \$         -         \$         -           10         P-101b         Remove Existing Security Fence         LF         80         \$         -         \$         -           11         P-101c         Remove Existing Headwall, Wingwalls, &         LS         1         \$         -         \$         -           12         P-101d         Remove Existing Apron, Protect         LS         1         \$         -         \$         -           12         P-101d         Headwall & Wingwalls         LS         1         \$         -         \$         -           14         P-152  | ITEM | SPEC NO                              | DESCRIPTION                        | UNIT | OUANTITY |              | TOTAL PRICE  |  |  |  |  |
| 4       015525a       Traffic Control       LS       1       \$       -       \$       -         7       015719a       Temporary Erosion Control       LS       1       \$       -       \$       -         8       C-105a       Mobilization (5%)       LS       1       \$       -       \$       -         9       P-101a       Remove Existing Riprap       SY       80       \$       -       \$       -         10       P-101b       Remove Existing Security Fence       LF       80       \$       -       \$       -         11       P-101c       Apron, Complete       LF       80       \$       -       \$       -         12       P-101d       Remove Existing Apron, Protect       LS       1       \$       -       \$       -         14       P-152a       Unclassified Excavation       CY       1,820       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -   |      |                                      |                                    | UNIT | QUANTIT  | (IN NUMBERS) | (IN NUMBERS) |  |  |  |  |
| 4       015525a       Traffic Control       LS       1       \$       -       \$       -         7       015719a       Temporary Erosion Control       LS       1       \$       -       \$       -         8       C-105a       Mobilization (5%)       LS       1       \$       -       \$       -         9       P-101a       Remove Existing Riprap       SY       80       \$       -       \$       -         10       P-101b       Remove Existing Security Fence       LF       80       \$       -       \$       -         11       P-101c       Apron, Complete       LF       80       \$       -       \$       -         12       P-101d       Remove Existing Apron, Protect       LS       1       \$       -       \$       -         14       P-152a       Unclassified Excavation       CY       1,820       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -   |      |                                      |                                    |      |          |              |              |  |  |  |  |
| 4       015525a       Traffic Control       LS       1       \$       -       \$       -         7       015719a       Temporary Erosion Control       LS       1       \$       -       \$       -         8       C-105a       Mobilization (5%)       LS       1       \$       -       \$       -         9       P-101a       Remove Existing Riprap       SY       80       \$       -       \$       -         10       P-101b       Remove Existing Security Fence       LF       80       \$       -       \$       -         11       P-101c       Apron, Complete       LF       80       \$       -       \$       -         12       P-101d       Remove Existing Apron, Protect       LS       1       \$       -       \$       -         14       P-152a       Unclassified Excavation       CY       1,820       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -   |      |                                      |                                    |      |          |              |              |  |  |  |  |
| 4       015525a       Traffic Control       LS       1       \$       -       \$       -         7       015719a       Temporary Erosion Control       LS       1       \$       -       \$       -         8       C-105a       Mobilization (5%)       LS       1       \$       -       \$       -         9       P-101a       Remove Existing Riprap       SY       80       \$       -       \$       -         10       P-101b       Remove Existing Security Fence       LF       80       \$       -       \$       -         11       P-101c       Apron, Complete       LF       80       \$       -       \$       -         12       P-101d       Remove Existing Apron, Protect       LS       1       \$       -       \$       -         14       P-152a       Unclassified Excavation       CY       1,820       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -   | 3    | 013223 115                           | Construction As-Built Survey (BIM) | 19   | 1        | ¢            | ¢            |  |  |  |  |
| 7         015719a         Temporary Erosion Control         LS         1         \$         \$         \$           8         C-105a         Mobilization (5%)         LS         1         \$         -         \$         -           9         P-101a         Remove Existing Riprap         SY         80         \$         -         \$         -           10         P-101b         Remove Existing Security Fence         LF         80         \$         -         \$         -           11         P-101b         Remove Existing Headwall, Wingwalls, &         LS         1         \$         -         \$         -           11         P-101c         Apron, Complete         LS         1         \$         -         \$         -           12         P-101d         Headwall & Wingwalls         LS         1         \$         -         \$         -           14         P-152a         Unclassified Excavation         CY         1,920         \$         -         \$         -           15         P-152b         Unsuitable Excavation         CY         460         \$         -         \$         -           15         P-152b         Unsuitable Excava   | - 5  | 015225.11a                           |                                    | 10   | 1        | φ -          | φ -          |  |  |  |  |
| 7         015719a         Temporary Erosion Control         LS         1         \$         \$         \$           8         C-105a         Mobilization (5%)         LS         1         \$         -         \$         -           9         P-101a         Remove Existing Riprap         SY         80         \$         -         \$         -           10         P-101b         Remove Existing Security Fence         LF         80         \$         -         \$         -           11         P-101b         Remove Existing Headwall, Wingwalls, &         LS         1         \$         -         \$         -           11         P-101c         Apron, Complete         LS         1         \$         -         \$         -           12         P-101d         Headwall & Wingwalls         LS         1         \$         -         \$         -           14         P-152a         Unclassified Excavation         CY         1,920         \$         -         \$         -           15         P-152b         Unsuitable Excavation         CY         460         \$         -         \$         -           15         P-152b         Unsuitable Excava   |      |                                      |                                    |      |          |              |              |  |  |  |  |
| 7         015719a         Temporary Erosion Control         LS         1         \$         \$         \$           8         C-105a         Mobilization (5%)         LS         1         \$         -         \$         -           9         P-101a         Remove Existing Riprap         SY         80         \$         -         \$         -           10         P-101b         Remove Existing Security Fence         LF         80         \$         -         \$         -           11         P-101b         Remove Existing Headwall, Wingwalls, &         LS         1         \$         -         \$         -           11         P-101c         Apron, Complete         LS         1         \$         -         \$         -           12         P-101d         Headwall & Wingwalls         LS         1         \$         -         \$         -           14         P-152a         Unclassified Excavation         CY         1,920         \$         -         \$         -           15         P-152b         Unsuitable Excavation         CY         460         \$         -         \$         -           15         P-152b         Unsuitable Excava   |      |                                      |                                    |      |          |              |              |  |  |  |  |
| 8         C-105a         Mobilization (5%)         LS         1         \$         -         \$         -           9         P-101a         Remove Existing Riprap         SY         80         \$         -         \$         -           10         P-101b         Remove Existing Security Fence         LF         80         \$         -         \$         -           11         P-101c         Remove Existing Headwall, Wingwalls, &         LS         1         \$         -         \$         -           11         P-101c         Remove Existing Apron, Protect         LS         1         \$         -         \$         -           12         P-101d         Headwall & Wingwalls         LS         1         \$         -         \$         -           14         P-152a         Unclassified Excavation         CY         1,920         \$         -         \$         -           15         P-152b         Unsuitable Excavation         CY         460         \$         -         \$         -           15         P-152b         Unsuitable Excavation         CY         460         \$         -         \$         -   | 4    | 015525a                              | Traffic Control                    | LS   | 1        | \$-          | \$-          |  |  |  |  |
| 8       C-105a       Mobilization (5%)       LS       1       \$       -       \$       -         9       P-101a       Remove Existing Riprap       SY       80       \$       -       \$       -         10       P-101b       Remove Existing Security Fence       LF       80       \$       -       \$       -         11       P-101c       Remove Existing Headwall, Wingwalls, & LS       1       \$       -       \$       -         11       P-101c       Remove Existing Apron, Protect       LS       1       \$       -       \$       -         12       P-101d       Remove Existing Apron, Protect       LS       1       \$       -       \$       -         12       P-101d       Headwall & Wingwalls       LS       1       \$       -       \$       -         14       P-152a       Unclassified Excavation       CY       1,920       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -   |      |                                      |                                    |      |          |              |              |  |  |  |  |
| 8         C-105a         Mobilization (5%)         LS         1         \$         -         \$         -           9         P-101a         Remove Existing Riprap         SY         80         \$         -         \$         -           10         P-101b         Remove Existing Security Fence         LF         80         \$         -         \$         -           11         P-101c         Remove Existing Headwall, Wingwalls, & LS         1         \$         -         \$         -           11         P-101c         Remove Existing Apron, Protect         LS         1         \$         -         \$         -           12         P-101d         Headwall & Wingwalls         LS         1         \$         -         \$         -           14         P-152a         Unclassified Excavation         CY         1,920         \$         -         \$         -           15         P-152b         Unsuitable Excavation         CY         460         \$         -         \$         -           15         P-152b         Unsuitable Excavation         CY         460         \$         -         \$         -   |      |                                      |                                    |      |          |              |              |  |  |  |  |
| 8         C-105a         Mobilization (5%)         LS         1         \$         -         \$         -           9         P-101a         Remove Existing Riprap         SY         80         \$         -         \$         -           10         P-101b         Remove Existing Security Fence         LF         80         \$         -         \$         -           11         P-101c         Remove Existing Headwall, Wingwalls, &         LS         1         \$         -         \$         -           11         P-101c         Remove Existing Apron, Protect         LS         1         \$         -         \$         -           12         P-101d         Headwall & Wingwalls         LS         1         \$         -         \$         -           14         P-152a         Unclassified Excavation         CY         1,920         \$         -         \$         -           15         P-152b         Unsuitable Excavation         CY         460         \$         -         \$         -           15         P-152b         Unsuitable Excavation         CY         460         \$         -         \$         -   | 7    | 015719a                              | Temporary Erosion Control          | LS   | 1        | \$ -         | \$-          |  |  |  |  |
| 9         P-101a         Remove Existing Riprap         SY         80         \$         -         \$         -           10         P-101b         Remove Existing Security Fence         LF         80         \$         -         \$         -           11         P-101c         Remove Existing Headwall, Wingwalls, & LS         1         \$         -         \$         -           11         P-101c         Remove Existing Apron, Protect         LS         1         \$         -         \$         -           12         P-101d         Headwall & Wingwalls         LS         1         \$         -         \$         -           14         P-152a         Unclassified Excavation         CY         1,920         \$         -         \$         -           15         P-152b         Unsuitable Excavation         CY         460         \$         -         \$         -           Construct Unpaved CDOT Class 6   |      |                                      |                                    |      |          |              |              |  |  |  |  |
| 9         P-101a         Remove Existing Riprap         SY         80         \$         -         \$         -           10         P-101b         Remove Existing Security Fence         LF         80         \$         -         \$         -           11         P-101c         Remove Existing Headwall, Wingwalls, & LS         1         \$         -         \$         -           11         P-101c         Remove Existing Apron, Protect         LS         1         \$         -         \$         -           12         P-101d         Headwall & Wingwalls         LS         1         \$         -         \$         -           14         P-152a         Unclassified Excavation         CY         1,920         \$         -         \$         -           15         P-152b         Unsuitable Excavation         CY         460         \$         -         \$         -           Construct Unpaved CDOT Class 6   |      |                                      |                                    |      |          |              |              |  |  |  |  |
| 9       P-101a       Remove Existing Riprap       SY       80       \$       -       \$       -         10       P-101b       Remove Existing Security Fence       LF       80       \$       -       \$       -         11       P-101c       Remove Existing Headwall, Wingwalls, & LS       1       \$       -       \$       -         11       P-101c       Remove Existing Headwall, Wingwalls, & LS       1       \$       -       \$       -         12       P-101d       Remove Existing Apron, Protect       LS       1       \$       -       \$       -         12       P-101d       Headwall & Wingwalls       LS       1       \$       -       \$       -         14       P-152a       Unclassified Excavation       CY       1,920       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -  | ~    | 0.405                                |                                    |      |          | <u>^</u>     | •            |  |  |  |  |
| 10       P-101b       Remove Existing Security Fence       LF       80       \$ -       \$ -         11       P-101c       Remove Existing Headwall, Wingwalls, & LS       1       \$ -       \$ -         11       P-101c       Apron, Complete       LS       1       \$ -       \$ -         12       P-101d       Remove Existing Apron, Protect       LS       1       \$ -       \$ -         12       P-101d       Headwall & Wingwalls       LS       1       \$ -       \$ -         14       P-152a       Unclassified Excavation       CY       1,920       \$ -       \$ -         15       P-152b       Unsuitable Excavation       CY       460       \$ -       \$ -         15       P-152b       Unsuitable Excavation       CY       460       \$ -       \$ -  | 8    | C-105a                               | Modilization (5%)                  | LS   | 1        | \$ -         | \$ -         |  |  |  |  |
| 10       P-101b       Remove Existing Security Fence       LF       80       \$ -       \$ -         11       P-101c       Remove Existing Headwall, Wingwalls, & LS       1       \$ -       \$ -         11       P-101c       Apron, Complete       LS       1       \$ -       \$ -         12       P-101d       Remove Existing Apron, Protect       LS       1       \$ -       \$ -         12       P-101d       Headwall & Wingwalls       LS       1       \$ -       \$ -         14       P-152a       Unclassified Excavation       CY       1,920       \$ -       \$ -         15       P-152b       Unsuitable Excavation       CY       460       \$ -       \$ -         15       P-152b       Unsuitable Excavation       CY       460       \$ -       \$ -  |      |                                      |                                    |      |          |              |              |  |  |  |  |
| 10       P-101b       Remove Existing Security Fence       LF       80       \$ -       \$ -         11       P-101c       Remove Existing Headwall, Wingwalls, & LS       1       \$ -       \$ -         11       P-101c       Apron, Complete       LS       1       \$ -       \$ -         12       P-101d       Remove Existing Apron, Protect       LS       1       \$ -       \$ -         12       P-101d       Headwall & Wingwalls       LS       1       \$ -       \$ -         14       P-152a       Unclassified Excavation       CY       1,920       \$ -       \$ -         15       P-152b       Unsuitable Excavation       CY       460       \$ -       \$ -         15       P-152b       Unsuitable Excavation       CY       460       \$ -       \$ -  |      |                                      |                                    |      |          |              |              |  |  |  |  |
| 11       P-101c       Remove Existing Headwall, Wingwalls, & LS       1       \$       -       \$       -         12       P-101d       Remove Existing Apron, Protect       LS       1       \$       -       \$       -         12       P-101d       Headwall & Wingwalls       LS       1       \$       -       \$       -         14       P-152a       Unclassified Excavation       CY       1,920       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -   | 9    | P-101a                               | Remove Existing Riprap             | SY   | 80       | \$-          | \$-          |  |  |  |  |
| 11       P-101c       Remove Existing Headwall, Wingwalls, & LS       1       \$       -       \$       -         12       P-101d       Remove Existing Apron, Protect       LS       1       \$       -       \$       -         12       P-101d       Headwall & Wingwalls       LS       1       \$       -       \$       -         14       P-152a       Unclassified Excavation       CY       1,920       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -   |      |                                      |                                    |      |          |              |              |  |  |  |  |
| 11       P-101c       Remove Existing Headwall, Wingwalls, & LS       1       \$       -       \$       -         12       P-101d       Remove Existing Apron, Protect       LS       1       \$       -       \$       -         12       P-101d       Headwall & Wingwalls       LS       1       \$       -       \$       -         14       P-152a       Unclassified Excavation       CY       1,920       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -   |      |                                      |                                    |      |          |              |              |  |  |  |  |
| 11       P-101c       Remove Existing Headwall, Wingwalls, & LS       1       \$       -       \$       -         12       P-101d       Remove Existing Apron, Protect       LS       1       \$       -       \$       -         12       P-101d       Headwall & Wingwalls       LS       1       \$       -       \$       -         14       P-152a       Unclassified Excavation       CY       1,920       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -   | 10   | P-101b                               | Remove Existing Security Fence     | LF   | 80       | \$-          | \$-          |  |  |  |  |
| 11P-101cApron, CompleteLS1\$-\$-12P-101dRemove Existing Apron, Protect<br>Headwall & WingwallsLS1\$-\$-14P-152aUnclassified ExcavationCY1,920\$-\$-15P-152bUnsuitable ExcavationCY460\$-\$-15P-152bUnsuitable ExcavationCY460\$-\$-   |      |                                      |                                    |      |          | Ŧ            | Ť            |  |  |  |  |
| 11P-101cApron, CompleteLS1\$-\$-12P-101dRemove Existing Apron, Protect<br>Headwall & WingwallsLS1\$-\$-14P-152aUnclassified ExcavationCY1,920\$-\$-15P-152bUnsuitable ExcavationCY460\$-\$-15P-152bUnsuitable ExcavationCY460\$-\$-   |      |                                      |                                    |      |          |              |              |  |  |  |  |
| 12       P-101d       Remove Existing Apron, Protect<br>Headwall & Wingwalls       LS       1       \$       -       \$       -         14       P-152a       Unclassified Excavation       CY       1,920       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -         15       P-152b       Unsuitable Excavation       CY       460       \$       -       \$       -   |      |                                      |                                    |      |          |              |              |  |  |  |  |
| 12P-101dHeadwall & WingwallsLS1\$-\$-14P-152aUnclassified ExcavationCY1,920\$-\$-15P-152bUnsuitable ExcavationCY460\$-\$-15P-152bUnsuitable ExcavationCY460\$-\$-15Construct Unpaved CDOT Class 6IIIIIII  | 11   | P-101c                               | Apron, Complete                    | LS   | 1        | \$-          | \$-          |  |  |  |  |
| 12P-101dHeadwall & WingwallsLS1\$-\$-14P-152aUnclassified ExcavationCY1,920\$-\$-15P-152bUnsuitable ExcavationCY460\$-\$-15P-152bUnsuitable ExcavationCY460\$-\$-15Construct Unpaved CDOT Class 6IIIIIII  |      |                                      |                                    |      |          |              |              |  |  |  |  |
| 12P-101dHeadwall & WingwallsLS1\$-\$-14P-152aUnclassified ExcavationCY1,920\$-\$-15P-152bUnsuitable ExcavationCY460\$-\$-15P-152bUnsuitable ExcavationCY460\$-\$-15Construct Unpaved CDOT Class 6IIIIIII  |      |                                      | Remove Existing Apron. Protect     |      |          |              |              |  |  |  |  |
| 15     P-152b     Unsuitable Excavation     CY     460     \$     -     \$     -       Image: Construct Unpaved CDOT Class 6     Image: Constru | 12   | P-101d                               |                                    | LS   | 1        | \$-          | \$-          |  |  |  |  |
| 15     P-152b     Unsuitable Excavation     CY     460     \$     -     \$     -       Image: Construct Unpaved CDOT Class 6     Image: Constru |      |                                      |                                    |      |          |              |              |  |  |  |  |
| 15     P-152b     Unsuitable Excavation     CY     460     \$     -     \$     -       Image: Construct Unpaved CDOT Class 6     Image: Constru |      |                                      |                                    |      |          |              |              |  |  |  |  |
| 15     P-152b     Unsuitable Excavation     CY     460     \$     -     \$     -       Image: Construct Unpaved CDOT Class 6     Image: Constru | 11   | P-152a                               | Unclassified Excavation            | CY   | 1 020    | \$           | ¢            |  |  |  |  |
| Construct Unpaved CDOT Class 6  | - 14 | 1-1J2a                               |                                    |      | 1,320    | - Ψ          | Ψ -          |  |  |  |  |
| Construct Unpaved CDOT Class 6  |      |                                      |                                    |      |          |              |              |  |  |  |  |
| Construct Unpaved CDOT Class 6  |      |                                      |                                    |      |          |              |              |  |  |  |  |
|   | 15   | P-152b                               | Unsuitable Excavation              | CY   | 460      | \$-          | \$-          |  |  |  |  |
|   |      |                                      |                                    |      |          |              |              |  |  |  |  |
|   |      |                                      | Construct Unpaved CDOT Class 6     |      |          |              |              |  |  |  |  |
| $[0, 1] = -00+0a$ [001/100 (000/1000, 000/1000) [01] $(2,340)$ [ $\phi$ = $[\phi$ =   | 17   | P-304Ca                              | Service Road, Complete             | SY   | 2,940    | \$-          | \$-          |  |  |  |  |

### UNIT PRICE BID FORMS - SCHEDULE III

| Base | Base Bid - Schedule III: Work Area 3 |   |      |          |                            |                             |  |  |  |
|------|--------------------------------------|---|------|----------|----------------------------|-----------------------------|--|--|--|
| ITEM | SPEC NO.                             | DESCRIPTION   | UNIT | QUANTITY | UNIT PRICE<br>(IN NUMBERS) | TOTAL PRICE<br>(IN NUMBERS) |  |  |  |
| 18   | P-304Cb                              | Crushed Aggregate Base Course, CDOT<br>Class 6                          | CY   | 740      | \$-                        | \$-                         |  |  |  |
| 19   | D-701a                               | Dual 36-Inch Culvert Extension, Class III<br>RCP (Complete In Place)    | LF   | 33       | \$-                        | \$ -                        |  |  |  |
| 23   | D-710a                               | Riprap, Type "M", Grouted   | SY   | 450      | \$-                        | \$-                         |  |  |  |
| 24   | D-752a                               | Concrete Trickle Channel, Complete                                      | LF   | 621      | \$-                        | \$-                         |  |  |  |
| 25   | D-752b                               | Headwall, Wingwalls & Apron for Dual 36-<br>Inch Pipe Culvert, Complete | EA   | 1        | \$-                        | \$-                         |  |  |  |
| 26   | D-752c                               | 36-Inch Culvert Security Grate,<br>Complete                             | EA   | 2        | \$-                        | \$-                         |  |  |  |
| 27   | D-752d                               | 36-Inch Culvert Exclusion Device,<br>Complete                           | EA   | 2        | \$-                        | \$-                         |  |  |  |
| 33   | F-162a                               | Chain Link Security Fence, Complete                                     | LF   | 80       | \$-                        | \$-                         |  |  |  |
| 34   | F-162b                               | Temporary Chain Link Security Fence,<br>Complete                        | LF   | 160      | \$-                        | \$-                         |  |  |  |
| 35   | F-163a                               | Wildlife Deterrent Fence Skirt, Complete                                | LF   | 80       | \$-                        | \$-                         |  |  |  |
| 36   | T-901a                               | Seeding   | AC   | 2.0      | \$-                        | \$-                         |  |  |  |

### UNIT PRICE BID FORMS - SCHEDULE III

| Base | Base Bid - Schedule III: Work Area 3 |  |      |          |                            |                             |  |  |  |
|------|--------------------------------------|--|------|----------|----------------------------|-----------------------------|--|--|--|
| ITEM | SPEC NO.                             | DESCRIPTION                                | UNIT | QUANTITY | UNIT PRICE<br>(IN NUMBERS) | TOTAL PRICE<br>(IN NUMBERS) |  |  |  |
|      |                                      |  |      |          |                            |                             |  |  |  |
| 37   | T-905a                               | Topsoil (Removed, Stockpiled and Replaced) | SY   | 19,900   | \$-                        | \$-                         |  |  |  |
|      |                                      |  |      |          |                            |                             |  |  |  |
| 38   | T-908a                               | Hydraulic Mulching                         | AC   | 2.0      | \$-                        | \$-                         |  |  |  |

BASE BID - SCHEDULE III TOTAL AMOUNT:

\$ -

### UNIT PRICE BID FORMS - SCHEDULE IV

| Base | Base Bid - Schedule IV: Work Area 4 |  |      |          |                            |                             |  |  |  |  |
|------|-------------------------------------|--|------|----------|----------------------------|-----------------------------|--|--|--|--|
| ITEM | SPEC NO.                            | DESCRIPTION                            | UNIT | QUANTITY | UNIT PRICE<br>(IN NUMBERS) | TOTAL PRICE<br>(IN NUMBERS) |  |  |  |  |
|      |                                     |  |      |          |                            |                             |  |  |  |  |
|      | 040000 44                           | Construction As Duilt Construct (DIM)  |      |          | •                          | <u>^</u>                    |  |  |  |  |
| 3    | 013223.11a                          | Construction As-Built Survey (BIM)     | LS   | 1        | \$-                        | \$-                         |  |  |  |  |
|      |                                     |  |      |          |                            |                             |  |  |  |  |
| 4    | 015525a                             | Traffic Control                        | LS   | 1        | \$-                        | \$ -                        |  |  |  |  |
|      |                                     |  |      |          |                            |                             |  |  |  |  |
| 7    | 015719a                             | Temporary Erosion Control              | LS   | 1        | \$-                        | \$-                         |  |  |  |  |
|      |                                     |  |      |          |                            |                             |  |  |  |  |
| 0    | 0 105-                              | Mobilization (5%)                      |      | 4        | ¢                          | ¢                           |  |  |  |  |
| 8    | C-105a                              |  | LS   | 1        | \$-                        | \$-                         |  |  |  |  |
|      |                                     |  |      |          |                            |                             |  |  |  |  |
| 9    | P-101a                              | Remove Existing Riprap                 | SY   | 220      | \$ -                       | \$ -                        |  |  |  |  |
|      |                                     |  |      |          |                            |                             |  |  |  |  |
| 10   | P-101b                              | Remove Existing Security Fence         | LF   | 90       | \$-                        | \$-                         |  |  |  |  |
|      |                                     |  |      |          |                            |                             |  |  |  |  |
| 44   |                                     | Remove Existing Headwall, Wingwalls, & |      | 4        | <b>*</b>                   | ¢                           |  |  |  |  |
| 11   | P-101c                              | Apron, Complete                        | LS   | 1        | \$-                        | \$-                         |  |  |  |  |
|      |                                     | Remove Existing Apron, Protect         |      |          |                            |                             |  |  |  |  |
| 12   |                                     | Headwall & Wingwalls                   | LS   | 1        | \$ -                       | \$ -                        |  |  |  |  |
|      |                                     |  |      |          |                            |                             |  |  |  |  |
| 14   | P-152a                              | Unclassified Excavation                | CY   | 2,120    | \$-                        | \$ -                        |  |  |  |  |
|      |                                     |  |      |          |                            |                             |  |  |  |  |
| 45   |                                     | Linevitelle Evenuetien                 | 0.1  | 100      | •                          | <u>^</u>                    |  |  |  |  |
| 15   | P-152b                              | Unsuitable Excavation                  | CY   | 460      | \$-                        | \$-                         |  |  |  |  |
|      |                                     | Construct Unpaved CDOT Class 6         |      |          |                            |                             |  |  |  |  |
| 17   | P-304Ca                             | Service Road, Complete                 | SY   | 1,640    | \$-                        | \$-                         |  |  |  |  |

### UNIT PRICE BID FORMS - SCHEDULE IV

| Base | Base Bid - Schedule IV: Work Area 4 |   |      |          |              |              |  |  |  |  |
|------|-------------------------------------|---|------|----------|--------------|--------------|--|--|--|--|
| ITEM | SPEC NO.                            | DESCRIPTION   | UNIT | QUANTITY |              |              |  |  |  |  |
|      |                                     |   |      |          | (IN NUMBERS) | (IN NUMBERS) |  |  |  |  |
| 18   | P-304Cb                             | Crushed Aggregate Base Course, CDOT<br>Class 6                          | СҮ   | 680      | \$-          | \$ -         |  |  |  |  |
| 10   | 1 00105                             |   | 01   |          | Ψ            | •            |  |  |  |  |
| 19   | D-701a                              | Dual 36-Inch Culvert Extension, Class III<br>RCP (Complete In Place)    | LF   | 40       | \$ -         | \$ -         |  |  |  |  |
| 22   | D-705a                              | Porous Backfill, Weir Structure Interface                               | LF   | 120      | \$-          | \$-          |  |  |  |  |
| 23   | D-710a                              | Riprap, Type "M", Grouted   | SY   | 860      | \$-          | \$-          |  |  |  |  |
| 24   | D-752a                              | Concrete Trickle Channel, Complete                                      | LF   | 629      | \$-          | \$-          |  |  |  |  |
| 25   | D-752b                              | Headwall, Wingwalls & Apron for Dual 36-<br>Inch Pipe Culvert, Complete | EA   | 1        | \$-          | \$-          |  |  |  |  |
| 26   | D-752c                              | 36-Inch Culvert Security Grate,<br>Complete                             | EA   | 2        | \$-          | \$-          |  |  |  |  |
| 27   | D-752d                              | 36-Inch Culvert Exclusion Device,<br>Complete                           | EA   | 2        | \$-          | \$-          |  |  |  |  |
| 33   | F-162a                              | Chain Link Security Fence, Complete                                     | LF   | 90       | \$-          | \$-          |  |  |  |  |
| 34   | F-162b                              | Temporary Chain Link Security Fence,<br>Complete                        | LF   | 170      | \$-          | \$ -         |  |  |  |  |
| 35   | F-163a                              | Wildlife Deterrent Fence Skirt, Complete                                | LF   | 90       | \$-          | \$-          |  |  |  |  |

### UNIT PRICE BID FORMS - SCHEDULE IV

| Base | Base Bid - Schedule IV: Work Area 4 |  |      |          |                            |                             |  |  |  |  |
|------|-------------------------------------|--|------|----------|----------------------------|-----------------------------|--|--|--|--|
| ITEM | SPEC NO.                            | DESCRIPTION                                | UNIT | QUANTITY | UNIT PRICE<br>(IN NUMBERS) | TOTAL PRICE<br>(IN NUMBERS) |  |  |  |  |
|      |                                     |  |      |          |                            |                             |  |  |  |  |
| 36   | T-901a                              | Seeding                                    | AC   | 2.0      | \$-                        | \$-                         |  |  |  |  |
|      |                                     |  |      |          |                            |                             |  |  |  |  |
| 37   | T-905a                              | Topsoil (Removed, Stockpiled and Replaced) | SY   | 21,100   | \$ -                       | \$ -                        |  |  |  |  |
|      |                                     |  |      |          |                            |                             |  |  |  |  |
| 38   | T-908a                              | Hydraulic Mulching                         | AC   | 2.0      | \$-                        | \$-                         |  |  |  |  |

BASE BID - SCHEDULE IV TOTAL AMOUNT:

\$

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### UNIT PRICE BID FORMS - SCHEDULE V

| Base | Base Bid - Schedule V: Work Area 5 |  |      |          |                            |                             |  |  |  |  |
|------|------------------------------------|--|------|----------|----------------------------|-----------------------------|--|--|--|--|
| ITEM | SPEC NO.                           | DESCRIPTION  | UNIT | QUANTITY | UNIT PRICE<br>(IN NUMBERS) | TOTAL PRICE<br>(IN NUMBERS) |  |  |  |  |
|      |                                    |  |      |          | (                          | (                           |  |  |  |  |
|      |                                    |  |      |          |                            |                             |  |  |  |  |
| 3    | 013223.11a                         | Construction As-Built Survey (BIM)                     | LS   | 1        | \$-                        | \$-                         |  |  |  |  |
|      |                                    |  |      |          |                            |                             |  |  |  |  |
|      |                                    |  |      |          |                            |                             |  |  |  |  |
| 4    | 015525a                            | Traffic Control  | LS   | 1        | \$ -                       | \$ -                        |  |  |  |  |
|      |                                    |  |      |          |                            |                             |  |  |  |  |
| 7    | 015719a                            | Temporary Erosion Control                              | LS   | 1        | \$-                        | \$-                         |  |  |  |  |
|      | 0157198                            |  | L3   | I        | φ -                        | φ -                         |  |  |  |  |
|      |                                    |  |      |          |                            |                             |  |  |  |  |
| 8    | C-105a                             | Mobilization (5%)                                      | LS   | 1        | \$ -                       | \$-                         |  |  |  |  |
|      |                                    |  |      |          |                            |                             |  |  |  |  |
|      |                                    |  |      |          |                            |                             |  |  |  |  |
| 9    | P-101a                             | Remove Existing Riprap                                 | SY   | 470      | \$ -                       | \$-                         |  |  |  |  |
|      |                                    |  |      |          |                            |                             |  |  |  |  |
| 10   | P-101b                             | Remove Existing Security Fence                         |      | 00       | ¢                          | ¢                           |  |  |  |  |
| 10   | P-TUTD                             | Remove Existing Security Fence                         | LF   | 90       | \$-                        | \$-                         |  |  |  |  |
|      |                                    |  |      |          |                            |                             |  |  |  |  |
| 11   | P-101c                             | Remove Existing Headwall, Wingwalls, & Apron, Complete | LS   | 1        | \$-                        | \$-                         |  |  |  |  |
|      |                                    |  |      |          |                            |                             |  |  |  |  |
|      |                                    | Remove Existing Apron, Protect                         |      |          |                            |                             |  |  |  |  |
| 12   | P-101d                             | Headwall & Wingwalls                                   | LS   | 1        | \$-                        | \$-                         |  |  |  |  |
|      |                                    |  |      |          |                            |                             |  |  |  |  |
|      | D (50                              | I Inclose ified Excernedian                            |      | 0.046    | <u>^</u>                   |                             |  |  |  |  |
| 14   | P-152a                             | Unclassified Excavation                                | CY   | 2,910    | \$-                        | \$ -                        |  |  |  |  |
|      |                                    |  |      |          |                            |                             |  |  |  |  |
| 15   | P-152b                             | Unsuitable Excavation                                  | CY   | 500      | \$-                        | \$-                         |  |  |  |  |
|      |                                    |  |      |          |                            |                             |  |  |  |  |
|      |                                    | Construct Unpaved CDOT Class 6                         |      |          |                            |                             |  |  |  |  |
| 17   | P-304Ca                            | Service Road, Complete                                 | SY   | 3,150    | \$-                        | \$-                         |  |  |  |  |

### UNIT PRICE BID FORMS - SCHEDULE V

| Base | Base Bid - Schedule V: Work Area 5 |   |      |          |              |              |  |  |  |
|------|------------------------------------|---|------|----------|--------------|--------------|--|--|--|
| ITEM | SPEC NO.                           | DESCRIPTION   | UNIT | QUANTITY |              |              |  |  |  |
|      |                                    |   |      |          | (IN NUMBERS) | (IN NUMBERS) |  |  |  |
| 18   | P-304Cb                            | Crushed Aggregate Base Course, CDOT<br>Class 6                          | CY   | 740      | \$-          | \$-          |  |  |  |
| 19   | D-701a                             | Dual 36-Inch Culvert Extension, Class III<br>RCP (Complete In Place)    | LF   | 38       | \$-          | \$-          |  |  |  |
| 22   | D-705a                             | Porous Backfill, Weir Structure Interface                               | LF   | 120      | \$-          | \$-          |  |  |  |
| 23   | D-710a                             | Riprap, Type "M", Grouted   | SY   | 810      | \$ -         | \$ -         |  |  |  |
| 24   | D-752a                             | Concrete Trickle Channel, Complete                                      | LF   | 681      | \$-          | \$ -         |  |  |  |
| 25   | D-752b                             | Headwall, Wingwalls & Apron for Dual 36-<br>Inch Pipe Culvert, Complete | EA   | 1        | \$-          | \$-          |  |  |  |
| 26   | D-752c                             | 36-Inch Culvert Security Grate,<br>Complete                             | EA   | 2        | \$-          | \$-          |  |  |  |
| 27   | D-752d                             | 36-Inch Culvert Exclusion Device,<br>Complete                           | EA   | 2        | \$ -         | \$-          |  |  |  |
| 33   | F-162a                             | Chain Link Security Fence, Complete                                     | LF   | 90       | \$ -         | \$-          |  |  |  |
| 34   | F-162b                             | Temporary Chain Link Security Fence,<br>Complete                        | LF   | 170      | \$-          | \$-          |  |  |  |
| 35   | F-163a                             | Wildlife Deterrent Fence Skirt, Complete                                | LF   | 90       | \$-          | \$-          |  |  |  |

## UNIT PRICE BID FORMS - SCHEDULE V

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| Base | Base Bid - Schedule V: Work Area 5 |  |      |          |                            |                             |  |  |  |  |
|------|------------------------------------|--|------|----------|----------------------------|-----------------------------|--|--|--|--|
| ITEM | SPEC NO.                           | DESCRIPTION                                | UNIT | QUANTITY | UNIT PRICE<br>(IN NUMBERS) | TOTAL PRICE<br>(IN NUMBERS) |  |  |  |  |
|      |                                    |  |      |          |                            |                             |  |  |  |  |
| 36   | T-901a                             | Seeding                                    | AC   | 2.0      | \$ -                       | \$-                         |  |  |  |  |
|      |                                    |  |      |          |                            |                             |  |  |  |  |
| 37   | T-905a                             | Topsoil (Removed, Stockpiled and Replaced) | SY   | 17,300   | \$-                        | \$-                         |  |  |  |  |
|      |                                    |  |      |          |                            |                             |  |  |  |  |
| 38   | T-908a                             | Hydraulic Mulching                         | AC   | 2.0      | \$-                        | \$-                         |  |  |  |  |

#### BASE BID - SCHEDULE V TOTAL AMOUNT:

-

### UNIT PRICE BID FORMS - SCHEDULE VI

| Base | Base Bid - Schedule VI: Work Area 6 |  |      |          |                            |                             |  |
|------|-------------------------------------|--|------|----------|----------------------------|-----------------------------|--|
| ITEM | SPEC NO.                            | DESCRIPTION  | UNIT | QUANTITY | UNIT PRICE<br>(IN NUMBERS) | TOTAL PRICE<br>(IN NUMBERS) |  |
|      |                                     |  |      |          |                            |                             |  |
| 3    | 013223.11a                          | Construction As-Built Survey (BIM)                     | LS   | 1        | \$-                        | \$-                         |  |
|      |                                     |  |      |          |                            |                             |  |
| 4    | 015525a                             | Traffic Control  | LS   | 1        | \$-                        | \$-                         |  |
|      |                                     |  |      |          |                            |                             |  |
| 7    | 015719a                             | Temporary Erosion Control                              | LS   | 1        | \$-                        | \$ -                        |  |
|      |                                     |  |      |          |                            |                             |  |
| 8    | C-105a                              | Mobilization (5%)                                      | LS   | 1        | \$-                        | \$-                         |  |
|      |                                     |  |      |          |                            |                             |  |
| 9    | P-101a                              | Remove Existing Riprap                                 | SY   | 420      | \$-                        | \$-                         |  |
|      |                                     |  |      |          |                            |                             |  |
| 10   | P-101b                              | Remove Existing Security Fence                         | LF   | 80       | \$-                        | \$ -                        |  |
| 12   | P-101d                              | Remove Existing Apron, Protect<br>Headwall & Wingwalls | LS   | 1        | \$-                        | \$-                         |  |
|      |                                     |  |      |          |                            |                             |  |
| 13   | P-101e                              | Remove Existing Pipe 12"-24"                           | LF   | 58       | \$-                        | \$-                         |  |
|      |                                     |  |      |          |                            |                             |  |
| 14   | P-152a                              | Unclassified Excavation                                | CY   | 790      | \$-                        | \$-                         |  |
|      |                                     |  |      |          |                            |                             |  |
| 15   | P-152b                              | Unsuitable Excavation                                  | CY   | 430      | \$-                        | \$-                         |  |
|      |                                     |  |      |          |                            |                             |  |
| 18   | P-304Cb                             | Crushed Aggregate Base Course, CDOT<br>Class 6         | CY   | 2,220    | \$-                        | \$-                         |  |

### UNIT PRICE BID FORMS - SCHEDULE VI

| Base | Base Bid - Schedule VI: Work Area 6 |  |      |          |                            |              |
|------|-------------------------------------|--|------|----------|----------------------------|--------------|
| ITEM | SPEC NO.                            | DESCRIPTION                                      | UNIT | QUANTITY | UNIT PRICE<br>(IN NUMBERS) |              |
|      |                                     |  |      |          |                            | (IN NUMBERS) |
|      |                                     | 24-Inch, Class III RCP (Complete In              |      |          |                            |              |
| 20   | D-701b                              | Place)   | LF   | 70       | \$ -                       | \$-          |
| 21   | D-701c                              | 18-Inch, Class III RCP (Complete In<br>Place)    | LF   | 49       | \$-                        | \$-          |
| 23   | D-710a                              | Riprap, Type "M", Grouted                        | SY   | 790      | \$-                        | \$-          |
| 24   | D-752a                              | Concrete Trickle Channel, Complete               | LF   | 2,059    | \$-                        | \$-          |
| 29   | D-752f                              | 18-Inch FES, Complete                            | EA   | 2        | \$-                        | \$-          |
| 30   | D-752g                              | 24-Inch FES, Complete                            | EA   | 4        | \$-                        | \$-          |
| 33   | F-162a                              | Chain Link Security Fence, Complete              | LF   | 80       | \$-                        | \$-          |
| 34   | F-162b                              | Temporary Chain Link Security Fence,<br>Complete | LF   | 180      | \$-                        | \$-          |
| 35   | F-163a                              | Wildlife Deterrent Fence Skirt, Complete         | LF   | 80       | \$-                        | \$ -         |
| 36   | T-901a                              | Seeding  | AC   | 3.0      | \$-                        | \$-          |
| 37   | T-905a                              | Topsoil (Removed, Stockpiled and<br>Replaced)    | SY   | 29,200   | \$-                        | \$-          |

### UNIT PRICE BID FORMS - SCHEDULE VI

| Base | Base Bid - Schedule VI: Work Area 6 |                    |      |          |                            |                             |  |
|------|-------------------------------------|--------------------|------|----------|----------------------------|-----------------------------|--|
| ITEM | SPEC NO.                            | DESCRIPTION        | UNIT | QUANTITY | UNIT PRICE<br>(IN NUMBERS) | TOTAL PRICE<br>(IN NUMBERS) |  |
|      |                                     |                    |      |          |                            |                             |  |
| 38   | T-908a                              | Hydraulic Mulching | AC   | 3.0      | \$-                        | \$-                         |  |

BASE BID - SCHEDULE VI TOTAL AMOUNT:

\$

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### UNIT PRICE BID FORMS - SCHEDULE VII

| Addit | Additive Alternate No 1 - Schedule VII: Work Area 7 |  |      |          |                            |                             |
|-------|---|--|------|----------|----------------------------|-----------------------------|
| ITEM  | SPEC NO.  | DESCRIPTION  | UNIT | QUANTITY | UNIT PRICE<br>(IN NUMBERS) | TOTAL PRICE<br>(IN NUMBERS) |
|       |   |  |      |          |                            |                             |
| 3     | 013223.11a  | Construction As-Built Survey (BIM)                       | LS   | 1        | \$-                        | \$-                         |
|       |   |  |      |          |                            |                             |
| 4     | 015525a   | Traffic Control  | LS   | 1        | \$-                        | \$-                         |
|       |   |  |      |          |                            |                             |
| 7     | 015719a   | Temporary Erosion Control                                | LS   | 1        | \$-                        | \$-                         |
|       |   |  |      |          |                            |                             |
| 8     | C-105a  | Mobilization (5%)  | LS   | 1        | \$-                        | \$-                         |
| 9     | P-101a  | Remove Existing Riprap                                   | SY   | 320      | \$ -                       | \$ -                        |
|       |   |  |      |          |                            | · ·                         |
| 12    | P-101d  | Remove Existing Apron, Protect<br>Headwall & Wingwalls   | LS   | 1        | \$-                        | \$-                         |
|       |   |  |      |          |                            |                             |
| 13    | P-101e  | Remove Existing Pipe 12"-24"                             | LF   | 30       | \$-                        | \$-                         |
|       |   |  |      |          |                            |                             |
| 14    | P-152a  | Unclassified Excavation                                  | CY   | 6,820    | \$-                        | \$-                         |
|       |   |  |      |          |                            |                             |
| 15    | P-152b  | Unsuitable Excavation                                    | CY   | 3,950    | \$-                        | \$-                         |
| 17    | P-304Ca   | Construct Unpaved CDOT Class 6<br>Service Road, Complete | SY   | 4,030    | \$ -                       | \$-                         |
|       |   |  |      |          |                            |                             |
| 18    | P-304Cb   | Crushed Aggregate Base Course, CDOT<br>Class 6           | CY   | 4,330    | \$-                        | \$-                         |

### UNIT PRICE BID FORMS - SCHEDULE VII

| Addit | Additive Alternate No 1 - Schedule VII: Work Area 7 |   |      |          |                            |                             |  |
|-------|---|---|------|----------|----------------------------|-----------------------------|--|
| ITEM  | SPEC NO.  | DESCRIPTION   | UNIT | QUANTITY | UNIT PRICE<br>(IN NUMBERS) | TOTAL PRICE<br>(IN NUMBERS) |  |
|       |   |   |      |          |                            |                             |  |
| 21    | D-701c  | 18-Inch, Class III RCP (Complete In<br>Place)                           | LF   | 77       | \$-                        | \$-                         |  |
|       |   |   |      |          |                            |                             |  |
| 23    | D-710a  | Riprap, Type "M", Grouted   | SY   | 370      | \$-                        | \$-                         |  |
|       |   |   |      |          |                            |                             |  |
| 24    | D-752a  | Concrete Trickle Channel, Complete                                      | LF   | 4,029    | \$-                        | \$ -                        |  |
|       |   |   |      |          |                            |                             |  |
| 28    | D-752e  | Headwall, Wingwalls & Apron for Dual 24-<br>Inch Pipe Culvert, Complete | EA   | 2        | \$-                        | \$-                         |  |
|       |   |   |      |          |                            |                             |  |
| 36    | T-901a  | Seeding   | AC   | 4.5      | \$-                        | \$-                         |  |
|       |   |   |      |          |                            |                             |  |
| 37    | T-905a  | Topsoil (Removed, Stockpiled and Replaced)                              | SY   | 45,800   | \$-                        | \$ -                        |  |
|       |   |   |      |          |                            |                             |  |
| 38    | T-908a  | Hydraulic Mulching  | AC   | 4.5      | \$-                        | \$-                         |  |

#### ADDITIVE ALTERNATE NO. 1 - SCHEDULE VII TOTAL AMOUNT:

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### UNIT PRICE BID FORMS - SCHEDULE VIII

| Addit | Additive Alternate No. 1 - Schedule VIII: Work Area 8 |                                     |         |          |              |              |
|-------|---|-------------------------------------|---------|----------|--------------|--------------|
| ITEM  | SPEC NO.  | DESCRIPTION                         | UNIT    | QUANTITY | UNIT PRICE   | TOTAL PRICE  |
|       |   |                                     |         |          | (IN NUMBERS) | (IN NUMBERS) |
|       |   |                                     |         |          |              |              |
|       |   |                                     |         |          |              |              |
| 3     | 013223.11a  | Construction As-Built Survey (BIM)  | LS      | 1        | \$-          | \$ -         |
|       |   |                                     |         |          |              |              |
|       |   |                                     |         |          |              |              |
| 4     | 015525a   | Traffic Control                     | LS      | 1        | \$ -         | \$-          |
|       |   |                                     |         |          |              |              |
|       |   |                                     |         |          |              |              |
| 7     | 015719a   | Temporary Erosion Control           | LS      | 1        | \$-          | \$-          |
|       |   |                                     |         |          |              |              |
|       |   |                                     |         |          |              |              |
| 8     | C-105a  | Mobilization (5%)                   | LS      | 1        | \$ -         | \$-          |
|       |   |                                     |         |          |              |              |
|       |   |                                     |         |          |              |              |
| 9     | P-101a  | Remove Existing Riprap              | SY      | 260      | \$-          | \$-          |
|       |   |                                     |         |          |              |              |
|       |   |                                     |         |          |              |              |
| 14    | P-152a  | Unclassified Excavation             | CY      | 4,610    | \$-          | \$-          |
|       |   |                                     |         | ,        |              | ·            |
|       |   |                                     |         |          |              |              |
| 15    | P-152b  | Unsuitable Excavation               | CY      | 4,060    | \$-          | \$-          |
|       | 1-1020  |                                     | 01      | 4,000    | Ψ            | Ψ            |
|       |   |                                     |         |          |              |              |
| 16    | P-152c  | Embankment (Borrow)                 | CY      | 3,760    | \$-          | \$-          |
| 10    | F=1320  |                                     |         | 3,700    | Ψ -          | φ -          |
|       |   |                                     |         |          |              |              |
| 17    | D 2040-   | Construct Unpaved CDOT Class 6      | ev.     | 0 000    | ¢            | ¢            |
| 17    | P-304Ca   | Service Road, Complete              | SY      | 2,300    | \$-          | \$-          |
|       |   |                                     |         |          |              |              |
|       | <b>B a a a a</b>                                      | Crushed Aggregate Base Course, CDOT | <u></u> | <b>_</b> |              |              |
| 18    | P-304Cb   | Class 6                             | CY      | 6,120    | \$-          | \$-          |
|       |   |                                     |         |          |              |              |
|       |   |                                     |         |          |              |              |
| 23    | D-710a  | Riprap, Type "M", Grouted           | SY      | 180      | \$-          | \$-          |

### UNIT PRICE BID FORMS - SCHEDULE VIII

| Addit | Additive Alternate No. 1 - Schedule VIII: Work Area 8 |  |      |          |                            |                             |  |
|-------|---|--|------|----------|----------------------------|-----------------------------|--|
| ITEM  | SPEC NO.  | DESCRIPTION                                | UNIT | QUANTITY | UNIT PRICE<br>(IN NUMBERS) | TOTAL PRICE<br>(IN NUMBERS) |  |
|       |   |  |      |          |                            |                             |  |
| 24    | D-752a  | Concrete Trickle Channel, Complete         | LF   | 5,691    | \$-                        | \$-                         |  |
|       |   |  |      |          |                            |                             |  |
| 31    | D-752h  | Underdrain Headwall                        | EA   | 4        | \$-                        | \$-                         |  |
|       |   |  |      |          |                            |                             |  |
| 32    | D-752i  | Concrete Valley Pan                        | LF   | 49       | \$-                        | \$-                         |  |
|       |   |  |      |          |                            |                             |  |
| 36    | T-901a  | Seeding                                    | AC   | 7.0      | \$-                        | \$-                         |  |
|       |   |  |      |          |                            |                             |  |
| 37    | T-905a  | Topsoil (Removed, Stockpiled and Replaced) | SY   | 62,200   | \$ -                       | \$-                         |  |
|       |   |  |      |          |                            |                             |  |
| 38    | T-908a  | Hydraulic Mulching                         | AC   | 7.0      | \$-                        | \$-                         |  |

ADDITIVE ALTERNATE NO. 1 - SCHEDULE VIII TOTAL AMOUNT:

\$

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VI. ATTACHMENT 2, DBE FORMS

# **DSBO FORMS**

The DSBO forms which apply to this contract are contained in the pages immediately following this page.

These pages are not included in the page numbering of this contract document.



#### DIVISION OF SMALL BUSINESS OPPORTUNITY (DSBO) COMMITMENT TO DBE PARTICIPATION

This page must be completed by all Bidders/Proposers to indicate their commitment towards satisfying the DBE participation requirement with <u>Colorado Unified Certification Program certified DBE firms</u>. The commitment will be incorporated into the contract and thereby the selected Bidder/Proposer will be held contractually responsible for the commitment.

#### DBE COMMITMENT:

□ The City and County of Denver has specified a \_\_\_\_% DBE Participation goal of the total value +/- changes on this contract on this project. The Bidder/Proposer is committing to \_\_\_\_% DBE Participation requirement on the total contract value +/- changes on this contract.

#### **GOOD FAITH EFFORT:**

The Bidder/Proposer must make adequate and substantive good faith efforts to meet this goal in order to be deemed responsive by DSBO. The Bidder/Proposer must submit a detailed statement and documentation of their good faith efforts. Bidder/Proposer shall provide documentation considered demonstrative of a "good faith" effort list of actions as outlined in <u>49 CFR Appendix A Part 26</u>.

The undersigned Bidder/Proposer hereby agrees and understands that they must comply with their DBE commitments on this project in conformity with the Requirements, Terms, and Conditions of this DBE Procurement/Contract Language. Failure to comply is a material breach of the contract, which may result in the imposition of sanctions on the Contractor/Consultant, as deemed appropriate by DSBO.

Bidder/Proposer (Name of Firm):

| Firm's Representative:                   |          |      |  |  |  |  |  |
|--|----------|------|--|--|--|--|--|
| Title:                                   |          |      |  |  |  |  |  |
| Signature (Firm's Representative): Date: |          |      |  |  |  |  |  |
| Address:                                 | Address: |      |  |  |  |  |  |
| City:                                    | State:   | Zip: |  |  |  |  |  |
| Phone:                                   | Email:   |      |  |  |  |  |  |



# **DIVISION OF SMALL BUSINESS OPPORTUNITY (DSBO) 1A - LIST OF PROPOSED SUBCONTRACTORS,** SUBCONSULTANTS, AND/OR SUPPLIERS

City & County of Denver Contract No.:\_

List ALL (certified and non-certified) firms the undersigned will utilize on this project. If additional pages are required, please copy and attach the second page. This form must be updated and submitted to DSBO when subcontractors, subconsultants, and/or suppliers are added throughout the contract duration.

| Contractor/Consultant    |                               |                   |
|--------------------------|-------------------------------|-------------------|
| Name of Firm:            | 🗆 MWBE (V) 🗆 SBE (V) 🗆        | DBE (√) □ EBE (√) |
| Firm's Representative:   |                               |                   |
| Signature:               | Date:                         |                   |
| Address:                 |                               |                   |
| City:                    | State:                        | Zip:              |
| Phone:                   | Email:                        |                   |
| Total Contract Value \$: | Self-Performing Contract Valu | e \$:             |

| Subcontractors, Subconsultants, and/or Suppliers |                              |  |  |
|--|------------------------------|--|--|
| Name of Firm:                                    | □ MWBE (√) □                 | SBE (√) □ DBE (√) □ EBE (√)                                |  |
| Firm's Representative:                           |                              |  |  |
| Address:   |                              |  |  |
| City:  | State:                       | Zip:   |  |
| Phone:   | Email:                       | ·  |  |
| Type of Service:                                 | Contract Value \$:           | Contract Value \$:   |  |
| Anticipated Start Date:                          | Anticipated Completion Date: |  |  |
|  |                              |  |  |
| Name of Firm:                                    | □ MWBE (√) □                 | SBE ( $\vee$ ) $\Box$ DBE ( $\vee$ ) $\Box$ EBE ( $\vee$ ) |  |
| Firm's Representative:                           |                              |  |  |
| Address:   |                              |  |  |
| City:  | State:                       | Zip:   |  |
| Phone:   | Email:                       | ·  |  |
| Type of Service:                                 | Contract Value \$:           | Contract Value \$:   |  |
| Anticipated Start Date:                          | Anticipated Comple           | Anticipated Completion Date:                               |  |



| Name of Firm:           | □ MWBE (√) □ S               | BE (√) □ DBE (√) □ EBE (√) |
|-------------------------|------------------------------|----------------------------|
| Firm's Representative:  |                              |                            |
| Address:                |                              |                            |
| City:                   | State:                       | Zip:                       |
| Phone:                  | Email:                       |                            |
| Type of Service:        | Contract Value \$:           |                            |
| Anticipated Start Date: | Anticipated Completi         | on Date:                   |
| Name of Firm:           | □ MWBE (V) □ S               | BE (V) 🗆 DBE (V) 🗆 EBE (V) |
| Firm's Representative:  |                              |                            |
| Address:                |                              |                            |
| City:                   | State:                       | Zip:                       |
| Phone:                  | Email:                       | ·                          |
| Type of Service:        | Contract Value \$:           |                            |
| Anticipated Start Date: | Anticipated Completi         | on Date:                   |
| Name of Firm:           | □ MWBE (√) □ S               | BE (√) □ DBE (√) □ EBE (√) |
| Firm's Representative:  |                              |                            |
| Address:                |                              |                            |
| City:                   | State:                       | Zip:                       |
| Phone:                  | Email:                       |                            |
| Type of Service:        | Contract Value \$:           |                            |
| Anticipated Start Date: | Anticipated Completi         | on Date:                   |
| Name of Firm:           | □ MWBE (V) □ S               | BE (√) □ DBE (√) □ EBE (√) |
| Firm's Representative:  |                              |                            |
| Address:                |                              |                            |
| City:                   | State:                       | Zip:                       |
| Phone:                  | Email:                       |                            |
| Type of Service:        | Contract Value \$:           |                            |
| Anticipated Start Date: | Anticipated Completion Date: |                            |



Project/Contract No.:

# DIVISION OF SMALL BUSINESS OPPORTUNITY (DSBO) LETTER OF INTENT (LOI)

**Project Name:** 

| A The undersioned Didden (Drenseen will will entit a the undersioned  |   | <b></b>   |
|---|---|---|
| A. The undersigned Bidder/Proposer will utilize the undersigned<br>if awarded the contract. This Letter of Intent must be Signe<br>DBE. Certified self-performing Prime must complete both se<br>lower tier, section C must be completed and signed by the fill | d by the Bidder/Proposer<br>ctions A and B. If the MW | and MWBE, SBE, EBE or<br>BE, SBE, EBE or DBE is a |
|   |   | Self-Performing:                                  |
| Bidder/Proposer (Name of Firm):   |   | Yes No  |
| Firm's Representative:  | Title:  |   |
| Signature (Firm's Representative):  | Date:   |   |
| Address:  |   |   |
| City:   | State:  | Zip:  |
| Phone:  | Email:  |   |
| work and NAICS code(s) to be performed and/or supply iter DBE.  | n that will be provided by                            | the MWBE, SBE, EBE or                             |
| Name of Firm:   |   | Певе Пре  |
| Firm's Representative:  | Title:  | ·   |
| Signature:  | Date  | :   |
| Address:  |   |   |
| City:   | State:  | Zip:  |
| Phone:  | Email:  |   |
| Scope of Work:  |   |   |
|   |   |   |
| NAICS Code(s):  |   |   |
| The Bidder/Proposer will utilize the aforementioned MWBE, SBE, EBE  |   | •   |
| above. The cost of the total MWBE, SBE, EBE or DBE bid amount is (L   | st total amount for Supplic                           | ers/Brokers):                                     |
| \$  |   |   |
| C. Lower Tier Utilization: If the certified firm is <u>not</u> a direct first tier<br>the Bidder/Proposer, please indicate the name of the firm that is u   |   | ant, and/or supplier to                           |

| Name of Firm:          |        |       |
|------------------------|--------|-------|
| Firm's Representative: | Title: |       |
| Signature:             | [      | Date: |

If the above-named Bidder/Proposer is not determined to be the successful Bidder/Proposer by the City, this <u>Letter of</u> Intent shall be null and void.

### VII. ATTACHMENT 3, INSURANCE REQUIREMENTS

# **INSURANCE REQUIREMENTS**

The insurance requirements relative to this contract are contained in the pages immediately following this page.

These pages are not included in the page numbering of this contract document.

# EXHIBIT C

## CITY AND COUNTY OF DENVER INSURANCE REQUIREMENTS FOR DEPARTMENT OF AVIATION OWNER CONTROLLED INSURANCE PROGRAM (OCIP/ROCIP) PROJECT

**NOTICE OF CHANGE TO ROCIP:** DEN reserves the right to terminate or modify the DEN ROCIP or any portion thereof. Further, dependent on factors including, but not limited to, the official timing and duration of the ROCIP project for which services are provided under this Agreement, DEN may need to transition from one ROCIP program to another and introduce corresponding requirements for contractors. DEN will provide Contractor notice in accordance with the terms and conditions of this Agreement.

## 1. General Information

City and County of Denver and Denver International Airport (hereinafter referred to collectively as "DEN") has arranged for certain construction activities at DEN to be insured under an Owner Controlled Insurance Program (OCIP) or a Rolling Owner Controlled Insurance Program (ROCIP) (hereinafter collectively referred to as "ROCIP"). A ROCIP is a single insurance program that insures DEN, the Contractor and subcontractors of any tier, and other designated parties (Enrolled Parties), for work performed at the Project Site. Certain trade contractors and subcontractors are ineligible for this program; see ROCIP Insurance Manual Section 4. Insurance requirements are determined based on the scope of work.

## 1.2 ROCIP Manuals

Below are links to access the current reference manuals related to DEN ROCIP. These manuals are part of the Contract Documents.

ROCIP Insurance Manual ROCIP Safety Manual ROCIP Claims Guide

## 2. Insurance Requirements for Non-ROCIP Contractors and Subcontractors (Ineligible Parties)

Contractor and subcontractors of any tier shall require all Ineligible Parties, as defined in ROCIP Insurance Manual Section 4 or confirmed as excluded by DEN, to provide and maintain insurance of the type and in limits as set forth in the Contractor Subcontract Agreement and such insurance shall include the minimum defined coverages and be evidenced to DEN as required in this Section 2.

2.1 Certificate Holder

Certificate(s) shall be issued to:

CITY AND COUNTY OF DENVER Denver International Airport 8500 Peña Boulevard, Suite 8810 Denver CO 80249 Attn: Risk Management

2.2 Acceptable Certificate of Insurance Form and Submission Instructions

Please read these requirements carefully to ensure proper documentation and receipt of your certificate(s) of insurance.

- ACORD FORM (or equivalent) certificate is required.
- SUBMIT via emailed in pdf format to: <u>DENCOI@flydenver.com</u>
- ELECTRONIC CERTIFICATES are required, hard copy documents will not be accepted.

- THIRD PARTY SOFTWARE may be implemented during the term of this Agreement to manage insurance compliance and documents with required use by Vendor of such system.
- REFERENCE on the certificate must include the DEN assigned Contract Number.
- 2.3 Coverage and Limits
  - 2.3.1 Commercial General Liability

Contractor shall maintain insurance coverage including bodily injury, property damage, personal injury, advertising injury, independent contractors, and products and completed operations in minimum limits of \$1,000,000 each occurrence, \$2,000,000 products and completed operations aggregate; if policy contains a general aggregate, a minimum limit of \$2,000,000 annual aggregate must be maintained.

- 2.3.1.1 Coverage shall include Contractual Liability covering liability assumed under this Agreement (including defense costs assumed under contract) within the scope of coverages provided.
- 2.3.1.2 Coverage shall include Mobile Equipment Liability, if used to perform services under this Agreement.
- 2.3.2 Business Automobile Liability

Contractor shall maintain a minimum limit of \$1,000,000 combined single limit each occurrence for bodily injury and property damage for all owned, leased, hired and/or non-owned vehicles used in performing services under this Agreement.

- 2.3.2.1 If operating vehicles unescorted airside at DEN, a \$10,000,000 combined single limit each occurrence for bodily injury and property damage is required.
- 2.3.2.2 If Contractor does not have blanket coverage on all owned and operated vehicles and will require unescorted airside driving privileges, then a schedule of insured vehicles (including year, make, model and VIN number) must be submitted with the Certificate of Insurance.
- 2.3.2.3 If transporting waste, hazardous material, or regulated substances, Contractor shall carry a Broadened Pollution Endorsement and an MCS 90 endorsement on its policy.
- 2.3.2.4 If Contractor does not own any fleet vehicles and Contractor's owners, officers, directors, and/or employees use their personal vehicles to perform services under this Agreement, Contractor shall ensure that one or both of the following coverages are maintained as appropriate: (i) Personal Automobile Liability including a Business Use Endorsement by the vehicle owner and (ii) Non-Owned Auto Liability by the Contractor.
- 2.3.2.5 If Contractor will be completing all services to DEN under this Agreement remotely and not be driving to locations under direction of the City to perform services, this requirement is waived.
- 2.3.3 Workers' Compensation and Employer's Liability Insurance

Contractor shall maintain the coverage as required by statute for each work location and shall maintain Employer's Liability insurance with limits no less than \$1,000,000 per occurrence for each bodily injury claim, \$1,000,000 per occurrence for each bodily injury caused by disease claim, and \$1,000,000 aggregate for all bodily injuries caused by disease claims.

- 2.3.3.1 Colorado Workers' Compensation Act allows for certain, limited exemptions from Worker's Compensation insurance coverage requirements. It is the sole responsibility of the Contractor to determine their eligibility for providing this coverage, executing all required documentation with the State of Colorado, and obtaining all necessary approvals. Verification document(s) evidencing exemption status must be submitted with the Certificate of Insurance.
- 2.3.4 Professional Liability (Errors and Omissions) Insurance

Contractor shall maintain a minimum limit of \$1,000,000 each claim and policy aggregate, providing coverage for applicable services outlined in this Agreement. If there are no applicable professional services, this coverage will not be required.

The Contractor shall be responsible for conferring with DEN Risk Management on any subcontractors providing work to the Project to obtain a formal determination if this coverage will be required.

2.3.5 Contractor's Pollution Legal Liability

If required by DEN Risk Management for any specific Excluded Party based on their scope of work, Contractor shall maintain coverage for its work site operations that are conducted on DEN's premises including project management and site supervision duties with a limit no less than \$1,000,000 each occurrence and aggregate resulting from claims arising out of a pollution condition or site environmental condition resulting out of work site operations on DEN's premises.

- 2.3.5.1 Coverage shall include claims/losses for bodily injury, property damage including loss of use of damaged property, defense costs including costs and expenses incurred in the investigation, defense or settlement of claims, and cleanup cost for pollution conditions resulting from illicit abandonment, the discharge, dispersal, release, escape, migration or seepage of any sold, liquid, gaseous or thermal irritant, contaminant, or pollutant, including soil, silt, sedimentation, smoke, soot, vapors, fumes, acids, alkalis, chemicals, electromagnetic fields, hazardous substances, hazardous materials, waste materials, low level radioactive waste, mixed wastes, on, in, into, or upon land and structures thereupon, the atmosphere, surface water or groundwater on the DEN premises.
- 2.3.5.2 Work site means a location where covered operations are being performed, including real property rented or leased from DEN for the purpose of conducting Contractor's covered operations.

The Contractor shall be responsible for conferring with DEN Risk Management on any subcontractors providing work to the Project to obtain a formal determination if this coverage will be required.

2.3.6 Cyber Liability

If required by DEN Risk Management for any specific Excluded Party based on their scope of work, Contractor shall maintain a minimum limit of \$1,000,000 per occurrence and \$1,000,000 annual policy aggregate covering claims involving privacy violations, information theft, damage to or destruction of electronic information, intentional and/or unintentional release of private information, alteration of electronic information, extortion, and network security.

The Contractor shall be responsible for conferring with DEN Risk Management on any subcontractors providing work to the Project to obtain a formal determination if this coverage will be required.

- 2.3.7 Technology Errors and Omissions, Network Security, and Privacy Liability (Cyber): If required by DEN Risk Management for any specific Excluded Party based on their scope of work, Contractor shall maintain a limit no less than \$1,000,000 each claim and aggregate; \$1,000,000 each claim and aggregate for cyber extortion; and no less than \$250,000 each claim for invoice manipulation and email spoofing.
  - 2.3.7.1 Coverage shall include, but not be limited to, liability arising from theft, dissemination and/or use of personal, private, confidential, information subject to a non-disclosure agreement, including information stored or transmitted, privacy or cyber laws, damage to or destruction of information, intentional and/or unintentional release of private information, alteration of information, extortion and network security, introduction of a computer virus into, or otherwise causing damage to, a customer's or third person's computer, computer system, network or similar computer related property and the data, software, and programs thereon, advertising injury, personal injury (including invasion of privacy) and intellectual property offenses related to internet.

The Contractor shall be responsible for conferring with DEN Risk Management on any subcontractors providing work to the Project to obtain a formal determination if this coverage will be required.

2.3.8 Unmanned Aerial Vehicle (UAV) Liability

If Contractor desires to use drones in any aspect of its work on DEN premises, the following requirements must be met prior to commencing any drone operations:

- 2.3.8.1 Express written permission must be granted by DEN.
- 2.3.8.2 Express written permission must be granted by the Federal Aviation Administration (FAA).
- 2.3.8.3 Drone equipment must be properly registered with the FAA.
- 2.3.8.4 Drone operator(s) must be properly licensed by the FAA.
- 2.3.8.5 Contractor must maintain UAV Liability including flight coverage, personal and advertising injury liability, and hired/non-owned UAV liability for its commercial drone operations with a limit no less than \$1,000,000 combined single limit each occurrence for bodily injury and property damage.
- 2.3.9 Excess/Umbrella Liability

Combination of primary and excess coverage may be used to achieve minimum required coverage limits. Excess/Umbrella policy(ies) must follow form of the primary policies with which they are related to provide the minimum limits and be verified as such on any submitted Certificate of Insurance.

2.4 Reference to Project and/or Contract

The DEN Project and/or Contract Number and project description shall be noted on the Certificate of Insurance.

2.5 Additional Insured

For all coverages required under this Agreement (excluding Workers' Compensation and Professional Liability, if required), Contractor's insurer(s) shall include the City and County of Denver, its elected and appointed officials, successors, agents, employees and volunteers as Additional Insureds by policy endorsement.

#### 2.6 Waiver of Subrogation

For all coverages required under this Agreement (excluding Professional Liability, if required), Contractor's insurer(s) shall waive subrogation rights against the City and County of Denver, its elected and appointed officials, successors, agents, employees and volunteers by policy endorsement.

If Contractor will be completing all services to the City under this Agreement remotely and not be traveling to locations under direction of the City to perform services, this requirement is waived specific to Workers' Compensation coverage.

2.7 Notice of Material Change, Cancellation or Nonrenewal

Each certificate and related policy shall contain a valid provision requiring notification to the Certificate Holder in the event any of the required policies be canceled or non-renewed or reduction in required coverage before the expiration date thereof.

- 2.7.1 Such notice shall reference the DEN assigned contract number related to this Agreement.
- 2.7.2 Said notice shall be sent thirty (30) days prior to such cancellation, non-renewal or reduction in coverage unless due to non-payment of premiums for which notice shall be sent ten (10) days prior.
- 2.7.3 If such written notice is unavailable from the insurer or afforded as outlined above, Contractor and/or it is insurance broker/agent shall provide written notice of cancellation, non-renewal and any reduction in coverage to the Certificate Holder within seven (7) business days of receiving such notice by its insurer(s) and include documentation of the formal notice received from its insurer(s) as verification. Contractor shall replace cancelled or nonrenewed policies with no lapse in coverage and provide an updated Certificate of Insurance to DEN.
- 2.7.4 In the event any general aggregate or other aggregate limits are reduced below the required minimum per occurrence limits, Contractor will procure, at its own expense, coverage at the requirement minimum per occurrence limits. If Contractor cannot replenish coverage within ten (10) calendar days, it must notify the City immediately.
- 2.8 Cooperation

Contractor agrees to fully cooperate in connection with any investigation or inquiry and accept any formally tendered claim related to this Agreement, whether received from the City or its representative. Contractor's failure to fully cooperate may, as determined in the City's sole discretion, provide cause for default under the Agreement. The City understands acceptance of a tendered claim does not constitute acceptance of liability.

- 2.9 Additional Provisions
  - 2.9.1 Deductibles or any type of retention are the sole responsibility of the Contractor.
  - 2.9.2 Defense costs shall be in addition to the limits of liability. If this provision is unavailable that limitation must be evidenced on the Certificate of Insurance.
  - 2.9.3 Coverage required may not contain an exclusion related to operations on airport premises.
  - 2.9.4 A severability of interests or separation of insureds provision (no insured vs. insured exclusion) is included under any policy requiring Additional Insured status.
  - 2.9.5 A provision that coverage is primary and non-contributory with other coverage or self-insurance maintained by DEN, excluding Professional Liability and Workers' Compensation policies, if required.

- 2.9.6 The insurance requirements under this Agreement shall be the greater of (i) the minimum limits and coverage specified hereunder or (ii) the broader coverage and maximum limits of coverage of any insurance policy or proceeds available to the Contractor. It is agreed that the insurance requirements set forth herein shall not in any way act to reduce coverage that is broader or that includes higher limits than the minimum set forth in this Agreement.
- 2.9.7 All policies shall be written on an occurrence form when available and industry norm. If an occurrence form is unavailable and/or the industry norm, claims-made coverage may be accepted by DEN provided the retroactive date is on or before the Agreement Effective Date or the first date when any goods or services were provided to DEN, whichever is earlier, and continuous coverage will be maintained or an extended discovery period of three years beginning at the time work under this Agreement is completed or the Agreement is terminated, whichever is later.
- 2.9.8 Certificates of Insurance must specify the issuing companies, policy numbers and policy periods for each required form of coverage. The certificates for each insurance policy are to be signed by an authorized representative and must be submitted to the City at the time Contractor signed this Agreement.
- 2.9.9 The insurance shall be underwritten by an insurer licensed or authorized to do business in the State of Colorado and rated by A.M. Best Company as A- VIII or better.
- 2.9.10 Certificate of Insurance and Related Endorsements: The City's acceptance of a certificate of insurance or other proof of insurance that does not comply with all insurance requirements shall not act as a waiver of Contractor's breach of this Agreement or of any of the City's rights or remedies under this Agreement. All coverage requirements shall be enforced unless waived or otherwise modified in writing by DEN Risk Management. Contractor is solely responsible for ensuring all formal policy endorsements are issued by their insurers to support the requirements.
- 2.9.11 The City shall have the right to verify, at any time, all coverage, information, or representations, and the insured and its insurance representatives shall promptly and fully cooperate in any such audit the City may elect to undertake including provision of copies of insurance policies upon request. In the case of such audit, the City may be subject to a non-disclosure agreement and/or redactions of policy information unrelated to the required coverage and premium amounts.
- 2.9.12 No material changes, modifications, or interlineations to required insurance coverage shall be allowed without the review and written approval of DEN Risk Management.
- 2.9.13 Contractor shall be responsible for ensuring the City is provided updated Certificate(s) of prior to each policy renewal.
- 2.9.14 Contractor's failure to maintain required insurance shall be the basis for immediate suspension and cause for termination of this Agreement, at the City's sole discretion and without penalty to the City.
- 2.10 Part 230 and the DEN Airport Rules and Regulations

If the minimum insurance requirements set forth herein differ from the equivalent types of insurance requirements in Part 230 of the DEN Airport Rules and Regulations, the greater and broader insurance requirements shall supersede those lesser requirements, unless expressly excepted in writing by DEN Risk Management.

## 3. Insurance Requirements for ROCIP Enrolled Contractors and Subcontractors

3.1 Insurance Provided by the DEN ROCIP

DEN retains the right to have this Project insured under a ROCIP. ROCIP coverage shall provide: (i) Commercial General Liability, (ii) Workers' Compensation & Employer's Liability, (iii) Excess Liability, (iv) Contractor's Pollution Liability, and (v) Builder's Risk as outlined herein and as defined by the respective policies for each coverage, for the period from the start of Work through completion and final acceptance by DEN except as otherwise provided herein.

## 3.2 Enrollment Required

Parties performing labor or services at the Project Site are eligible to enroll in the DEN ROCIP, unless they are Ineligible Parties (as defined in ROCIP Insurance Manual Section 4). Participation is mandatory but not automatic. Parties eligible for enrollment shall follow the procedures and follow the instructions as provided in the DEN ROCIP Insurance Manual to enroll in the program. When the Contractor and subcontractors of any tier are properly enrolled, the DEN ROCIP Administrator will issue a Certificate of Insurance evidencing the coverages afforded to each Enrolled Party under the DEN ROCIP, prior to their commencing Work on the Project Site.

3.3 Exclusion of Contractor/Subcontractor Insurance Costs from Proposal and Bid Prices

Contractor shall exclude from Contractor's cost of work and ensure that each subcontractor of any tier exclude from their cost of work, normal costs for insurance for those coverages provided under the DEN ROCIP. As part of the enrollment process, Contractor and subcontractors shall provide policy declaration rate pages and deductible endorsements on the General Liability, Workers' Compensation, and Excess Liability policies as required in the DEN ROCIP Insurance Manual. The calculation of these costs will be determined by the ROCIP Program Administrator. The costs of DEN ROCIP coverage includes reductions in insurance premiums, all relevant taxes and assessments, markup on insurance premiums, and losses retained through large deductibles, self-insured retentions, or self-funded programs. Change orders shall also exclude the cost of ROCIP coverage.

Pre-employment substance abuse testing costs will be covered by DEN and should be removed from bid prices. Drug testing will be more thoroughly discussed in the ROCIP Safety Manual.

3.4 Insurance Premiums

DEN will pay the insurance premiums for the DEN ROCIP insurance policies. DEN is responsible for all adjustments to the premiums and will be the sole beneficiary of all dividends, retroactive adjustments, return premiums, and any other monies due through audits or otherwise. The Contractor assigns to DEN the right to receive all such adjustments and will require that each subcontractor of any tier assign to DEN all such adjustments. The Contractor and the subcontractors who are Enrolled Parties shall execute such further documentation as may be required by DEN to accomplish this assignment.

3.5 Off Site Operations Coverage Under ROCIP

The DEN ROCIP will provide certain insurance coverage for DEN, Contractor and Enrolled Parties, along with their Eligible Employees performing Work at the Project Site. Off-site operations shall be covered only if designated in writing by DEN and when all operations at such site are identified and solely dedicated to the Project. Contractors and subcontractors are responsible to notify the DEN ROCIP Administrator in writing, to request coverage for specified off-site operations. Coverage is not provided at the off-site location unless confirmed in writing by the DEN ROCIP Administrator.

## 3.6 DEN ROCIP Insurance Manual

As soon as practicable, the DEN ROCIP Insurance Manual will be sent to each Enrolled Party and will become a part of the Contract and Contractor's Subcontract with its subcontractor and its subcontractors' agreements with any lower-tier subcontractor. The DEN ROCIP Insurance Manual will contain the administrative and claim reporting procedures. Contractor agrees to and will require that its subcontractors of any tier to cooperate with the DEN ROCIP Administrator in providing all required information.

#### 3.7 Conflicts

Descriptions of the DEN ROCIP coverages set forth in ROCIP Insurance Manual Section 4.6 are not intended to be complete or meant to alter or amend any provision of the DEN ROCIP insurance policies. The DEN ROCIP coverages, terms, conditions, and exclusions are set forth in full in their respective policy forms. In the event of a conflict or omission between the coverages provided in the DEN ROCIP insurance Manual, this Exhibit or elsewhere in the Contract Documents, the DEN ROCIP insurance policies shall govern. In the event of a conflict between the provisions of this Exhibit and the DEN ROCIP Insurance Manual, that does not involve any conflict with the provisions of the DEN ROCIP insurance policies, the provisions of this Exhibit shall govern.

- 3.8 ROCIP Insurance Coverage Provided to Enrolled Parties
  - 3.8.1 Insurance Provided by DEN

Unless otherwise provided herein, prior to commencement of the Work, DEN, at its sole option and expense, shall secure and maintain at all times during the performance of this Contract the insurance specified below, insuring DEN, Enrolled Parties and such other persons or interests as DEN may designate with limits not less than those specified below for each coverage.

3.8.1.1 Workers' Compensation & Employer's Liability – On Site Only

DEN shall maintain the coverage as required by statute for the Project Site and shall maintain Employer's Liability insurance with limits no less than \$1,000,000 per occurrence for each bodily injury claim, \$1,000,000 per occurrence for each bodily injury caused by disease claim, and \$1,000,000 aggregate for all bodily injuries caused by disease claims.

3.8.1.2 Commercial General Liability – On Site Only

DEN shall maintain insurance coverage including bodily injury, property damage, personal injury, advertising injury, and products and completed operations in minimum limits as listed below:

| Coverage                                      | Limit        |
|---|--------------|
| Annual General Aggregate                      |              |
| (Per Project and Reinstates Annually)         | \$4,000,000  |
| Products/Completed Operations Aggregate       | \$4,000,000  |
| (Per Project and Statute of Repose)           |              |
| Total Products/Completed Operations Aggregate | \$20,000,000 |
| (Statute of Repose)                           |              |
| Personal / Advertising Injury Limit           | \$2,000,000  |
| Each Occurrence Limit                         | \$2,000,000  |
| Fire Damage Legal Liability (any one fire)    | \$ 300,000   |
| Medical Payments (any one person)             | \$ 10,000    |

## 3.8.1.3 Excess Liability Insurance

DEN shall maintain coverage following form with underlying policies of Commercial General Liability and Employer's Liability in minimum limits as listed below:

| Coverage  | Limit         |
|---|---------------|
|   |               |
| Annual General Aggregate                                      |               |
| (Per Project and Reinstates Annually)                         | \$200,000,000 |
| Products/Completed Operations Aggregate<br>(Per Project)      | \$20,000,000  |
| Total Products/Completed Operations Aggregate<br>(Policy Cap) | \$400,000,000 |
| Each Occurrence Limit   | \$200,000,000 |

DEN, in its sole discretion, may elect to provide higher limits, based on Project size. Excess Liability limits are shared by all Insured parties.

#### 3.8.1.4 Contractor's Pollution Liability

DEN shall maintain coverage for bodily injury, property damage, or environmental damage caused by a pollution event resulting from covered operations, including completed operations, at the Project Site with a limit no less than \$10,000,000 each occurrence and aggregate. Coverage includes microbial matter and legionella pneumophila in any structure on land and the atmosphere contained with the structure. Products/Completed Operations coverage may extend for the statute of limitations/repose after final completion of the Project.

## 3.8.1.5 Builder's Risk Insurance

DEN shall maintain, Builder's Risk (and/or Installation Floater) in the amount of \$200,000,000 per occurrence subject to various sublimits (as defined in the Builders' Risk Policy). Such insurance shall end when the first of the following occurs: 1) DEN's interest in the Work ceases; 2) the policy expires or is cancelled; or 3) the Work is accepted by DEN.

Builder's Risk Insurance limits are shared by all insured parties and shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss of damage including, theft, vandalism, malicious mischief, terrorism, rigging and hoisting for materials and equipment that are part of the Project, collapse, earthquake, flood, windstorm, falsework, testing and startup (as provided by the policy), temporary buildings and debris removal including demolition occasioned by enforcement of any applicable ordinance laws, and shall cover reasonable compensation for services and expenses required as a result of such insured loss.

This Builder's Risk Insurance shall cover portions of the Work stored off site, and also portions of the Work in transit.

DEN and Contractor shall waive all rights against (1) each other and any of their subcontractors of any tier, and all respective agents and employees, and (2) the architect, architect's consultants, separate contractors, if any, and any of their subcontractors of any tier, and all respective agents and employees, for damages caused by fire or other causes of loss to the extent covered by Builder's Risk Insurance obtained pursuant to this Section or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by DEN as fiduciary. DEN or Contractor, as appropriate, shall require of the architect, architect's consultants, separate contractors, and their subcontractors of any tier, and all respective agents and employees, by appropriate agreements, written where

legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

#### 3.8.2 Claim Chargeback

A claim charge-back will be assessed, regardless of fault, for the amount of any loss payable under this program with the exception of Workers' Compensation and Excess Liability, up to a maximum of \$25,000 each loss. General Contractor may elect to pass no more than \$5,000 of this charge, each loss, through to any responsible subcontractor.

3.9 Other Insurance Provided By Enrolled Parties

At their own expense, the Enrolled Parties of all tiers must carry the following minimum coverage and limits and such insurance shall be evidenced to DEN and the DEN ROCIP Administrator as required in this Section 3.9.

3.9.1 Certificate Holder

Certificate(s) shall be issued to:

CITY AND COUNTY OF DENVER Denver International Airport 8500 Peña Boulevard, Suite 8810 Denver CO 80249 Attn: Risk Management

and

CITY AND COUNTY OF DENVER Department of Aviation c/o Marsh USA, Inc. 111 SW Columbia, Ste 500 Portland, OR 97201

3.9.2 Acceptable Certificate of Insurance Form and Submission Instructions

Please read these requirements carefully to ensure proper documentation and receipt of your certificate(s) of insurance.

- ACORD FORM (or equivalent) certificate is required.
- SUBMIT via emailed in pdf format to: DENCOI@flydenver.com

and DenverAirport.ROCIP@marsh.com

- ELECTRONIC CERTIFICATES are required, hard copy documents will not be accepted.
- THIRD PARTY SOFTWARE may be implemented during the term of this Agreement to manage insurance compliance and documents with required use by Vendor of such system.
- REFERENCE on the certificate must include the DEN assigned Contract Number.
- 3.9.3 Other Insurance Requirements

Enrolled Contractors shall adhere to the same minimum insurance requirements as stated in Section 2 of this exhibit, with the following exceptions:

• Commercial General Liability coverage requirement is Off Site Only

- Workers' Compensation and Employer's Liability coverage requirement is Off Site Only
- Contractor's Pollution Legal Liability is not required

#### 4. Contractor Warranties and Agreements

4.1 Accuracy of Contractor-provided Information

Contractor warrants that all information submitted to DEN or the DEN ROCIP Administrator is accurate and complete to the best of its knowledge. Contractor will notify DEN or the DEN ROCIP Administrator immediately in writing of any errors discovered during the performance of the Work.

4.2 Contractor Responsible to Review Coverage

Contractor acknowledges that all references to DEN ROCIP policy terms, conditions, and limits of liability in this document, as well as the DEN ROCIP Insurance Manual, are for reference only. Contractor and its subcontractors of any tier are responsible for conducting their own independent review and analysis of the DEN ROCIP insurance policies in formulating any opinion or belief as to the applicability of such coverage in the event of any loss or potential claim. Any type of insurance or increase of limits not described above, which the Contractor requires for its own protection or on account of statute, shall be its own responsibility and at its own expense.

4.3 Audit

Contractor agrees to make its records available for review and to cooperate with DEN, its insurers and insurance brokers, the City Auditor, and representatives of the aforesaid parties in the event of an audit. In the event that a DEN audit of Contractor's records, as permitted in the Contract or other DEN ROCIP documents, reveals a discrepancy in the insurance, payroll, safety, or any other information required to be provided to DEN or the DEN ROCIP Administrator, or reveals inclusion of costs for DEN ROCIP coverage or other coverage beyond what is described above in any payment for the Work, DEN will have the right to deduct from payments due Contractor all such insurance costs as well as all audit costs.

4.4 Insurance Costs Removed

Contractor warrants that the costs for insurance as provided under the DEN ROCIP were not included in Contractor's bid or proposal for the Work, the Contract Price/Contract Sum, and will not be included in any change order or any request for payment for the Work or extra work.

## 5. Contractor Obligations

5.1 ROCIP Documents Shall be Provided to Subcontractor

Contractor shall furnish each bidding subcontractor, vendor, supplier, material dealer or other party a copy of this Exhibit, the DEN ROCIP Insurance Manual and the DEN ROCIP Safety Manual and shall incorporate the terms of this Exhibit in all contracts and agreements entered into for performance of any portion of the Work.

5.2 Timely Enrollment Required

Contractor shall enroll in the DEN ROCIP within five (5) business days following a request by DEN or the DEN ROCIP Administrator. Contractor shall notify each subcontractor of the process for enrolling in DEN ROCIP and confirm that enrollment is mandatory, but not automatic. Contractor shall assure that subcontractors of any tier shall not commence Work until verification of enrollment is confirmed by the DEN ROCIP Administrator by the issuance of a Certificate of Insurance to each individual Enrolled Party.

#### 5.3 Compliance with Conditions

Contractor shall not violate any condition of the policies of insurance provided by DEN under the terms of this Exhibit, the DEN ROCIP Insurance Manual or the DEN ROCIP Safety Manual. All requirements imposed by the subject policies and to be performed by Contractor shall likewise be imposed on, assumed, and performed by each subcontractor of any tier.

#### 5.4 Claims Cooperation

Contractor shall participate in claim reporting procedures. Contractor agrees to assist and cooperate in every manner possible in connection with the adjustment of all claims arising out of operations within the scope of the Work required by the Contract, and to cooperate with DEN's insurer(s) in all claims and demands which DEN's insurer(s) is called upon to adjust or to defend against. Contractor shall take all necessary action to assure that its subcontractors of any tier comply with any request for assistance and cooperation. This obligation includes, without limitation, providing light or modified duty for injured workers, appearing in mediation, arbitration, or court proceedings and/or participating in settlement meetings, as may be required.

#### 5.5 Monthly Payroll Submission

All Enrolled Parties shall submit monthly payrolls and worker-hour reports to DEN and/or the DEN ROCIP Administrator via the DEN ROCIP Administrator's online reporting system as outlined in the DEN ROCIP Insurance Manual. The online reporting instructions will be provided to all Contractors at time of enrollment. Failure to submit these reports may result in funds being held or delayed from monthly progress payments. Payroll must be submitted online for each month, including zero (0) payroll, if applicable, until completion of the Work under each Contract and Subcontract. For subcontractors of any tier performing Work under multiple Subcontracts, a separate payroll report is required for each Subcontract under which Work is being performed.

5.6 Response to Information Requests

All insurance underwriting, payroll, rating or loss history information requested by DEN or the DEN ROCIP Administrator shall be provided by the Contractor within three (3) business days of request. Contractor agrees (and will require each subcontractor to agree) that DEN, DEN's insurers or its representative may audit the Contractor's records or records of subcontractors of any tier to confirm the accuracy of all insurance information provided including, without limitation, any such information that may have any effect on insurance resulting from changes in the Work. At all times during performance of the Contract and Subcontracts, the Contractor and subcontractors of any tier shall cooperate with DEN, the DEN ROCIP Administrator and DEN's insurers.

5.7 Responsibility for Safety

Notwithstanding the DEN ROCIP, the Contractor shall initiate, maintain, and supervise all safety precautions and programs in connection with the Work. Contractor is solely responsible, at no adjustment to the contract sum payable or contract time, for initiating, maintaining, and supervising all safety precautions and programs relating to the conduct of Work including, without limitation, any safety programs or procedures that are required by any applicable state or federal laws, rules or regulations, or under the terms of the DEN ROCIP Safety Manual.

5.8 Duty of Care

Nothing herein shall relieve the Enrolled Parties of their respective obligations to exercise due care in the performance of their duties in connection with the Work or to complete the Work in strict compliance with this Contract and subsequent subcontracts.

#### 6. Notices and Costs

6.1 Limitations on DEN Provided Coverage and DEN Right to Purchase Other Coverage

DEN assumes no obligations to provide insurance other than that evidenced by the policies referred to in Section 3.8. DEN, however, reserves the right to furnish insurance coverage of various types and limits provided that such coverage shall not be less than that specified in Section 3.8 and the costs of such insurance shall be paid by DEN. Apart from the DEN ROCIP, DEN may at its option purchase additional insurance coverages that insure the Project that may not necessarily insure the Contractor or the subcontractors. Without limitation, examples of such coverage may include pollution liability, excess professional liability, and excess automobile liability insurance.

6.2 Contractors Responsible for Own Equipment

Contractor and subcontractors are solely responsible for loss or damage of all construction tools and other equipment whether owned, leased, rented, borrowed, or used on Work at the Project Site. If an individual Enrolled Party purchases insurance on their tools and equipment, such insurance shall contain a waiver of subrogation in favor of the City and County of Denver, its elected and appointed officials, agents, employees and volunteers and all other Enrolled Parties. If an individual Enrolled Party does not purchase such insurance, that Enrolled Party will hold harmless the City and County of Denver, its elected and appointed officials, agents, employees and volunteers and volunteers and other Enrolled Parties for loss or damage to its tools and equipment.

6.3 No Release; No Waiver of Immunity

The provision of the DEN ROCIP shall in no way be interpreted as relieving Contractor or subcontractors of any tier of any responsibility or liability under the Contract Documents, the DEN ROCIP insurance policies or applicable laws including, without limitation, Contractor's and subcontractor's responsibilities relative to indemnification and their obligation to exercise due care in the performance of the Work and to complete the Work in strict compliance with the Contract Documents. The parties hereto understand and agree that the City and County of Denver, its elected and appointed officials, agents, employees and volunteers are relying on, and do not waive or intend to waive by any provisions of this agreement, the monetary limitations or any other rights, immunities and protections provided by the Colorado Governmental Immunity Act, §§ 24-10-101 to 120, C.R.S., or otherwise available to DEN, its officers, officials and employees.

6.4 DEN Right to Withhold Payments

In addition to any other rights of withholding that DEN may have under the Contract Documents, DEN has the right to withhold any payments otherwise due to Contractor in the event of a failure by Contractor or any subcontractor to comply with the requirements of this Exhibit, the DEN ROCIP Insurance Manual or the DEN ROCIP Safety Manual. DEN may withhold from any payment owing to Contractor the costs of DEN ROCIP coverages if included in a request for payment. Such withholding by DEN shall not be deemed to be a default under the Contract. DEN shall withhold from Contractor the costs of DEN ROCIP coverages in an Enrolled Party's total payroll for the Work over the amount reported to DEN and/or the DEN ROCIP Administrator at time of enrollment.

6.5 DEN Remedies

Without limitation upon any of DEN's other rights or remedies, any failure of an Enrolled Party to comply with any provision of this Exhibit, the DEN ROCIP Insurance Manual, or the DEN ROCIP Safety Manual shall be deemed a material breach of the Contract, thereby entitling DEN, at its option, upon notice to Contractor, to (1) suspend performance by Contractor and/or the offending subcontractor, without any adjustment to Contract Sum Payable or Contract Time, until there is full compliance, or (2) terminate this Contract for cause.

#### 6.6 Off Site Storage

Unless otherwise provided in the Contract Documents, the property insurance provided by DEN shall not cover portions of the Work stored off the Site without written approval of DEN. Contractor shall be responsible for reporting such property or work if ownership has been transferred to DEN. If ownership rests with the Contractor, Contractor shall be responsible for obtaining insurance to protect its interests.

#### 6.7 Partial Occupancy

Partial occupancy or use shall not commence until DEN insurer(s) providing Builders Risk and/or Property Insurance have consented to such partial occupancy or use by endorsement or otherwise. DEN and the Contractor shall take reasonable steps to obtain consent of the insurer(s) and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

#### 6.8 DEN Right to Exclude Parties from the DEN ROCIP

DEN reserves the right to exclude any subcontractor from the DEN ROCIP, before or after enrollment by the subcontractor. If DEN elects to exclude a subcontractor from the DEN ROCIP, the Contractor will be responsible for ensuring the insurance coverages outlined in the Contractor's Subcontract Agreement are provided to DEN or the DEN ROCIP Administrator before the subcontractor can begin or resume Work on the Project.

#### 6.9 DEN's Right to Modify or Discontinue DEN ROCIP Coverages

If DEN determines that modification or discontinuation of the DEN ROCIP is in the best interest of DEN, the Contractor and subcontractor will receive sixty (60) days advance written notice to secure and maintain such insurance as is required to provide replacement coverage comparable to that provided under the DEN ROCIP. Provided that the foregoing is not the result of any failure by the Contractor or any subcontractor to comply with the requirements of the Contract Documents, the DEN ROCP Insurance Manual or DEN ROCIP Safety Manual, the costs of such replacement insurance shall be deemed a cost of Work for which the Contractor shall be entitled to a Contract Adjustment, without any sum added thereto for Allowable Markup. The form, content, limits of liability, cost and the rating of the insurer(s) issuing such replacement coverage shall be subject to DEN's prior written approval.

## 7. Definitions

| Certificate of<br>Insurance:  | A document providing evidence of coverage for a particular insurance<br>policy or policies. This will include certificates issued to Enrolled<br>Parties evidencing the coverage afforded under the DEN ROCIP and<br>certificates issued to DEN evidencing additional coverage "Provided by<br>Enrolled Parties" |
|-------------------------------|--|
| DEN:                          | City and County of Denver and Denver International Airport   |
| Contract:                     | The written agreement between DEN and Contractor describing the<br>Work, contract terms and conditions, or a portion thereof; also includes<br>a written agreement between a Contractor and any subcontractor as well<br>as between subcontractors and their subcontractors of any tier.                         |
| Contractor Insurance<br>Cost: | The costs of ROCIP coverage are defined as the amount of Contractor's and eligible Subcontractors' of every tier reduction in insurance costs due to participation in the DEN ROCIP.   |

| A coordinated insurance program providing certain coverage, as defined herein, for DEN, Contractor and Enrolled Subcontractors, along with their Eligible Employees, performing Work at the Project Site.  |
|--|
| Employees of the Contractor and Enrolled Subcontractors who are not excluded from the ROCIP under the "Excluded Parties" definition.   |
| The Contractor and those subcontractors that have submitted all<br>necessary enrollment information and been accepted into the ROCIP as<br>evidenced by the issuance of a Certificate of Insurance.  |
| Parties not covered by the ROCIP because of ineligibility or DEN<br>explicit exclusion. No insurance coverage provided by DEN under the<br>ROCIP shall extend to the activities or products of the following:  |
| • Any person or organization that fabricates or manufactures products, materials or supplies away from a Project Site with no direct onsite installation responsibility  |
| Exception: The ROCIP Insurer may agree to extend General Liability coverage only if the General Contractor has a written contract with the off-site fabricator or manufacturer to provide the pre-fabricated product. To consider extending coverage, the Insurer requires 30 days advance written notice to the ROCIP Administrator with details of the work/product and a copy of the contract between the General Contractor and the off-site fabricator or manufacturer. Approval must be obtained from the Insurer before enrolling in the ROCIP for General Liability coverage only. |
| • Scaffolding contractors (erecting and dismantling scopes of work only)   |
| • Hazardous materials remediation, removal, or transportation companies and their consultants  |
| • Architects, engineers, surveyors and their consultants   |
| • Truckers, haulers, material dealers, vendors, suppliers, and others<br>who merely transport, pick up, deliver, or carry materials, personnel,<br>parts or equipment or any other items or persons to or from a Project<br>Site including companies providing supplemental services   |
| • Contractors, subcontractors and subconsultants who do not work at a Project Site   |
| • Employees of an Enrolled Party who either (i) do not work on-site or<br>(ii) occasionally visit a Project Site to make deliveries, pick-up<br>supplies or personnel, to perform supervisory or progress<br>inspections, or for any other reason  |
|  |

|                                  | • Temporary labor employees (individuals working directly for the Contractor and not procured through a third party such as a Professional Employer Organization)   |
|----------------------------------|---|
|                                  | Exception: The ROCIP Insurer typically will accept including<br>employees working for a contractor, or employed by temporary<br>staffing agencies or professional employer organizations, as long as<br>those employer-entities are enrolled as subcontractors to supply<br>supplemental workforce.   |
| Insured:<br>(liability policies) | DEN, Contractor and Enrolled Parties and their Eligible Employees and<br>any other party named in the insurance policies.   |
| Insurers:                        | Those insurance companies providing the DEN ROCIP coverage. The insurers will be identified on the issued Certificate of Insurance and in the DEN ROCIP Insurance Manual.   |
| Net Bid:                         | Contractor bids with insurance costs removed because of the obligation<br>of any Enrolled Party to delete insurance costs for coverage provided<br>by the ROCIP from its bid and all change orders. Net bids are subject to<br>verification by the Administrator through the providing of contractors'<br>rate and declaration pages from their Insurance policies. |
| ROCIP<br>Administrator:          | The DEN ROCIP Administrator will be identified in the DEN ROCIP Insurance Manual.   |
| ROCIP Insurance<br>Manual:       | A reference document provided to Contractor and subcontractors of all<br>tiers, which summarizes the terms and provisions of the DEN ROCIP<br>and provides information about requirements and compliance.   |
| ROCIP Safety<br>Manual:          | A reference document provided to Contractor and subcontractors of all<br>tiers which contains workplace safety requirements of all Enrolled<br>Parties.   |
| Off Site Work:                   | Work performed away from the Project Site.  |
| Payroll:                         | For purposes of the ROCIP only, refers to Unburdened Straight Time Payroll per Workers Compensation Class Code.   |
| Policy Owner:                    | City and County of Denver and Denver International Airport  |
| Project:                         | The Project as defined in the contract documents and as described in the Declarations of the DEN ROCIP insurance policies.  |

| Project Site: | Means those areas designated in writing by DEN in a Contract<br>document for performance of the Work and such additional areas as |
|---------------|---|
|               | may be designated in writing by DEN for Contractors' use in   |
|               | performance of the Work. Subject to the ROCIP Insurer(s) written  |
|               | approval, the term "Project Site" shall also include: (1) field office sites,   |
|               | (2) property used for bonded storage of material for the Project  |
|               | approved by DEN, (3) staging areas dedicated to the Project, and (4)  |
|               | areas where activities incidental to the Project are being performed by   |
|               | Contractor or subcontractors covered by the DEN ROCIP Worker's  |
|               | Compensation policy (if included), but excluding any permanent  |
|               | locations of any Enrolled Party.  |
|               |   |

*Items 1 through 4 above must be approved by the ROCIP Insurer and listed on the DEN ROCIP insurance policies.* 

- Subcontract: The written agreement between Contractor and subcontractor, or between subcontractor and a lower tier subcontractor, describing the Work, subcontract terms and conditions, or a portion thereof.
- Subcontractor: Includes those persons, firms, joint venture entities, corporations, or other parties that enter into a Subcontract with Contractor to perform Work at the Project Site and any of these subcontractor's lower-tier subcontractors.
- Work: Construction build operations, as fully described in the Contract and Subcontract, performed at the Project Site.

#### VIII. ATTACHMENT 4, DIVERSITY AND INCLUSIVENESS IN CITY SOLICITATIONS

For the City or the City Agency to consider a bid/Bid, Bidders must complete the on-line Diversity and Inclusiveness in City Solicitations Form – then <u>save an electronic copy of the completed form and</u> <u>include the electronic copy as part of its Bid. A Bid or response to a solicitation by a Bidder that does</u> <u>not include this completed form shall be deemed non-responsive.</u>

#### Click on the following link to access the on-line form:

#### https://us.openforms.com/Form/57f3a8ea-39b7-4115-be17-1770f38d3cf6

Using the form found in link above, please state whether you have a Diversity and Inclusiveness program for employment and retention, procurement and supply chain activities or customer service, and provide the additional information requested on the form. The information provided on the Diversity and Inclusiveness in City Solicitations Form will provide an opportunity for City Bidders to describe their own diversity and inclusiveness practices. Bidders are not expected to conduct intrusive examinations of their employees, managers, or business partners in order to describe diversity and inclusiveness measures. Rather, the City simply seeks a description of the Bidder's current practices, if any. Diversity and Inclusiveness information provided by City Bidders in response to City solicitations for services or goods will be collated, analyzed, and made available in reports consistent with City Executive Order No. 101. However, no personally identifiable information provided by or obtained from Bidders will be in such reports.

## IX. ATTACHMENT 5, SAMPLE AGREEMENT

# SAMPLE AGREEMENT

The Sample Contract and required Federal provisions are contained in the pages immediately following this page. The complete contract will include other exhibits in addition to the Federal provisions.

These pages are not included in the page numbering of this contract document.

#### Notice to Bidders: <u>City Required Contract Provisions</u>

The following contract provisions are required in every contract issued by the Department of Aviation. The language of each clause is drafted in accordance with Federal, State, and City law and policy and are not subject to modification. Accordingly, Bidders should carefully review this Sample Agreement provided with the Invitation for Bids, including these required provisions, in preparation of their Bids.

Standard Federal Provisions contained in the Contract and the Exhibit or Appendix Disadvantaged Business Enterprise (City) requirements DBE Prompt Pay and City Prompt Pay Prevailing Wage Ordinance City Minimum provisions; worker retention provision Insurance Requirements Defense and Indemnification - Bidder must provide comments/provisions it *cannot accept* with Bid Disputes/Dispute Resolution (see D.R.M.C. § 5-17 and DEN Rules and Regulations Part 250) Compliance with All Laws and Regulations/with Patent, Trademark and Copyright Laws Compliance with all Executive Orders including drugs/alcohol/tobacco **Governing Law and Venue** Bond Ordinances Force Majeure Taxes and Costs **Environmental Requirements** Records Retention and Other Standard City Provisions including but not limited to: Diversity and Inclusiveness No Discrimination in Employment Advertising and Public Disclosure Colorado Open Records Act Examination of Records and Audits, including Federal and City Auditor provisions Conflict of Interest Sensitive Security Information, DEN Security, Badging, and other Security Provisions

## **CONTRACT FOR CONSTRUCTION**

THIS CONTRACT FOR CONSTRUCTION ("Contract") is made and entered into as of the date stated on the City's signature page below (the "Effective Date") by and between the CITY AND COUNTY OF DENVER, a municipal corporation of the State of Colorado acting on behalf of its Department of Aviation (the "City"), and <u>Contractor</u>, a <u>Jurisdiction</u> corporation and authorized to do business in the State of Colorado ("Contractor") (collectively the "Parties").

## WITNESSETH

WHEREAS, the City, for at least three (3) consecutive days, advertised that proposals would be received for furnishing all labor, tools, supplies, equipment, materials and everything necessary and required for the construction and installation of the work under Invitation for Bid No. *Number*, *Project description* (the "**Project**") at Denver International Airport ("**DEN**"); and

WHEREAS, a proposal in response to said advertisement have been received by the Chief Executive Officer of DEN (the "CEO"), who has recommended that a contract for the work be made and entered into with Contractor, which was the lowest, responsive, qualified bidder; and

WHEREAS, Contractor is qualified, willing, and able to perform the work in accordance with its proposal and the Contract Documents defined below;

**NOW, THEREFORE**, for and in consideration of the compensation to be paid by the City to Contractor and the other terms and conditions of this Contract, the Parties agree as follows:

# 1. CONTRACT DOCUMENTS:

It is agreed by the Parties that the instruments, drawings, and documents described below and whether attached to and bound with this Contract or not (the "**Contract Documents**"), are incorporated into the Contract by this reference, and are as fully a part of this Contract as if they were set out here verbatim and in full:

- Contract
- Notice to Proceed
- Form of Final Receipt
- Building Information Modeling ("BIM") if applicable
- Change Directives
- Change Orders
- Exhibit A Federal Appendices
- Exhibit B City Equal Employment Opportunity Provisions
- Exhibit C Insurance Requirements
- Exhibit D Prevailing Wage Schedules
- Exhibit E Special Conditions

- Exhibit F Standard Specifications for Construction General Contract Conditions(2011 Edition) (the "Yellow Book") ("General Conditions") (Table of Contents attached as Exhibit F)
- Exhibit G Performance Bond
- Exhibit H Payment Bond
- Exhibit I Technical Specifications
- Exhibit J Contract Drawings
- Exhibit K Invitation for Bids and Contractor's Response to Invitation for Bids

In the event of an irreconcilable conflict between a provision of Section 1 through \_\_\_\_\_\_ of this Contract document and any other provisions of the Contract Documents such that it is impossible to give effect to both, the order of precedence to determine which document shall control to resolve such conflict is as follows, in descending order:

- 1. Exhibit A Federal Appendices
- 2. Contract
- 3. Change Directives
- 4. Change Orders
- 5. Exhibit B City Equal Employment Opportunity Provisions
- 6. Exhibit E Special Conditions
- Exhibit F Standard Specifications for Construction General Contract Conditions (2011 Edition) (the "Yellow Book") ("General Conditions") (Table of Contents attached as Exhibit F)
- 8. Exhibit C Insurance Requirements
- 9. Exhibit D Prevailing Wage Schedules
- 10. Exhibit I Technical Specifications
- 11. Exhibit J Contract Drawings
- 12. Exhibit K Invitation for Bids and Contractor's Response to Invitation for Bids
- 13. Exhibit G Performance Bond
- 14. Exhibit H Payment Bond
- 15. Notice to Proceed
- 16. Form of Final Receipt
- 17. Building Information Modeling ("BIM") if applicable

The remaining order of precedence is established in General Conditions Title 4.

# 2. SCOPE OF WORK:

Contractor shall furnish all labor and tools, supplies, equipment, superintendence, materials, and everything necessary for and required to do, perform, and complete all of the work described, drawn, set forth, shown, and included in the Contract Documents (the "**Work**").

## **3. TERM OF CONTRACT:**

The Senior Vice President of Design, Engineering and Construction (the "SVP") will issue a written notice to proceed to Contractor (the "Notice to Proceed"), and Contractor shall begin performing the Work required under this Contract within ten (10) days of such Notice to Proceed (the "**Commencement Date**"). Contractor shall fully complete the Work in its entirety within 365 consecutive calendar days from the date of the Notice to Proceed ("**Contract Time**"). Contractor is not authorized to commence work prior to its receipt of the Notice to Proceed.

## 4. TERMS OF PAYMENT:

The City agrees to pay Contractor for the performance and completion of all of the Work as required by the Contract Documents, and Contractor agrees to accept as its full and only compensation therefor, a total amount of **Contract Amount Dollars and Amount Cents (\$Click here to enter text..00)** (the "**Maximum Contract Amount**"). In no event will the City's liability exceed the Maximum Contract Amount, as adjusted by duly authorized Change Orders in accordance with this Contract. The Parties specifically agree that any performance by Contractor hereunder shall not subject the City to any cost, charge, or fee not specified above.

## 5. VERIFIED STATEMENT OF CLAIMS:

Colorado Revised Statutes § 38-26-107 ("C.R.S.") requires that, in the event any person or company files a verified statement of amounts due and unpaid in connection with a claim for labor and materials supplied on this project, the City shall withhold from payments to Contractor sufficient funds to insure the payment of any such claims. Should the City be made a party to any lawsuit to enforce such unpaid claims or any lawsuit arising out of or relating to such withheld funds, Contractor agrees to pay to the City its costs and a reasonable attorney's fee incurred in any such lawsuit. Because the City Attorney Staff does not bill the City for legal services on an hourly basis, Contractor agrees a reasonable fee shall be computed at the rate of two hundred dollars and no cents (\$200.00) per hour of City Attorney time.

## 6. **DISPUTES:**

All disputes arising under or related to this Contract shall be resolved by administrative hearing under the procedures described in *Exhibit F*, as modified by *Exhibit E*, if any, and the Denver Revised Municipal Code § 5-17 ("D.R.M.C.") and all related rules and procedures, including but not limited to DEN Rule 250. The determination resulting from said administrative hearing shall be final, subject only to Contractor's right to appeal the determination under Colorado Rule of Civil Procedure, Rule 106.

# 7. DEFENSE AND INDEMNIFICATION:

**A.** To the fullest extent permitted by law, Contractor hereby agrees to defend, indemnify, reimburse and hold harmless City, its appointed and elected officials, agents and employees for, from and against all liabilities, claims, judgments, suits or demands for damages to persons or property arising out of, resulting from, or related to the work performed under this Contract that are due to the negligence or fault of the Contractor or the Contractor's agents, representatives, subcontractors, or suppliers ("Claims"). This indemnity shall be interpreted in the broadest possible manner consistent with the applicable law to indemnify the City.

**B.** Contractor's duty to defend and indemnify City shall arise at the time written notice of the Claim is first provided to City regardless of whether suit has been filed and even if

Contractor is not named as a Defendant.

C. Contractor will defend any and all Claims which may be brought or threatened against City and will pay on behalf of City any expenses incurred by reason of such Claims including, but not limited to, court costs and attorney fees incurred in defending and investigating such Claims or seeking to enforce this indemnity obligation, including but not limited to time expended by the City Attorney Staff, whose costs shall be computed at the rate specified in Section 5 . Such payments on behalf of City shall be in addition to any other legal remedies available to City and shall not be considered City's exclusive remedy.

**D.** Insurance coverage requirements specified in this Contract shall in no way lessen or limit the liability of the Contractor under the terms of this indemnification obligation. The Contractor shall obtain, at its own expense, any additional insurance that it deems necessary for the City's protection.

E. This defense and indemnification obligation shall survive the expiration or termination of this Contract.

# 8. WAIVER OF C.R.S. § 13-20-801, *ET SEQ*.:

Notwithstanding any other provision of this Contract, Contractor specifically waives all of the provisions of C.R.S. §§ 13-20-801 *et seq*. as they may relate to Contractor's performance under this Contract.

# 9. LIQUIDATED DAMAGES:

If Contractor fails to achieve Substantial Completion of the Work within the Contract Time or fails to substantially complete the Work described in the Scope of Work within the time set forth in the Special Conditions, the City will suffer substantial damages, which damages would be difficult to accurately determine. The Parties hereto have considered the possible elements of damages and have agreed that the amount of liquidated damages for Contractor's failure to substantially complete the work within the Contract Time or to substantially complete the work described in Milestone Areas within the time set forth in the Special Conditions shall be as provided in the Special Conditions. If Contractor shall fail to pay such liquidated damages promptly upon demand therefor, the Surety on its Performance Bond and Payment Bond shall pay such damages. Also, the City may withhold all, or any part of, such liquidated damages from any payment due to Contractor. Additional provisions relating to liquidated damages are set forth in the Construction Contract General Conditions and Special Conditions.

# **10. INSURANCE REQUIREMENTS:**

**A.** Contractor shall obtain and keep in force all of the minimum insurance coverage forms and amounts set forth in *Exhibit C* ("Insurance Requirements") during the entire Term of this Agreement, including any extensions of the Agreement or other extended period stipulations stated in *Exhibit C*. All certificates of insurance must be received and accepted by the City before any airport access or work commences.

**B.** Contractor shall ensure and document that all subcontractors performing services or providing goods hereunder procure and maintain insurance coverage that is appropriate to the primary business risks for their respective scopes of performance. At minimum, such insurance must conform to all applicable requirements of DEN Rules and Regulations Part 230 and all other applicable laws and regulations.

**C.** The City in no way warrants or represents the minimum limits contained herein are sufficient to protect Contractor from liabilities arising out of the performance of the terms and conditions of this Contract by Contractor, its agents, representatives, employees, or subcontractors. Contractor shall assess its own risks and maintain higher limits and/or broader coverage as it deems appropriate and/or prudent. Contractor is not relieved of any liability or other obligations assumed or undertaken pursuant to this Contract by reason of its failure to obtain or maintain insurance in sufficient amounts, duration, or types.

**D.** In no event shall the City be liable for any of the following: (i) business interruption or other consequential damages sustained by Contractor; (ii) damage, theft, or destruction of Contractor's inventory, or property of any kind; or (iii) damage, theft, or destruction of an automobile, whether or not insured.

**E.** The Parties understand and agree that the City, its elected and appointed officials, employees, agents and volunteers are relying on, and do not waive or intend to waive by any provisions of this Contract, the monetary limitations and any other rights, immunities and protections provided by the Colorado Governmental Immunity Act, C.R.S. §§ 24-10-101, *et seq.*, or otherwise available to the City, its elected and appointed officials, employees, agents and volunteers.

## 11. CONTRACT BINDING:

It is agreed that this Contract shall be binding on and inure to the benefit of the Parties hereto, their heirs, executors, administrators, assigns, and successors.

# **12. SEVERABILITY:**

If any part, portion, or provision of this Contract shall be found or declared null, void, or unenforceable for any reason whatsoever by any court of competent jurisdiction or any governmental agency having authority thereover, only such part, portion, or provision shall be affected thereby and all other parts, portions, and provisions of this Contract shall remain in full force and effect.

## 13. ASSIGNMENT:

Contractor shall not assign, pledge or transfer its duties, obligations, and rights under this Contract, in whole or in part, without first obtaining the written consent of the CEO or their authorized representative. Any attempt by Contractor to assign or transfer its rights hereunder without such prior written consent shall, at the option of the CEO or their authorized representative, automatically terminate this Contract and all rights of Contractor hereunder.

## 14. APPROPRIATIONS:

Payment will be in accordance with the provisions of the Contract Documents, including Title 9 of the General Conditions, and will be made solely and exclusively from funds appropriated or otherwise lawfully made available for the purposes of this Contract from the Airport System Funds. The City has no obligation to make payments from any other fund or source or to make additional appropriations or allocations to such fund to satisfy such costs or other obligations.

## **15.** APPROVALS:

In the event this Contract calls for the payment by the City of Five Million Dollars and no cents (\$5,000,000.00) or more, approval by the Denver City Council, acting by Resolution in accordance with Section 3.2.6 of the Charter of the City and County of Denver, is and shall be an express condition precedent to the lawful and binding execution and performance of this Contract.

## **16. JOINT VENTURE:**

If Contractor is a Joint Venture, the partners to the Joint Venture shall be jointly and severally liable to the City for the performance of all duties and obligations of Contractor which are set forth in the Contract.

## 17. NO DISCRIMINATION IN EMPLOYMENT:

In connection with the performance of work under the Agreement, the Contractor may not refuse to hire, discharge, promote, demote, or discriminate in matters of compensation against any person otherwise qualified, solely because of race, color, religion, national origin, ethnicity, citizenship, immigration status, gender, age, sexual orientation, gender identity, gender expression, marital status, source of income, military status, protective hairstyle, or disability. The Contractor shall insert the foregoing provision in all subcontracts.

## **18.** COORDINATION OF SERVICES:

Contractor agrees to perform its work under this Contract in accordance with the operational requirements of DEN, and all work and movement of personnel or equipment on areas included within the DEN site shall be subject to the regulations and restrictions established by the City or its authorized agents.

## **19. COMPLIANCE WITH ALL LAWS AND REGULATIONS:**

A. Contractor and its subcontractor(s) shall perform all work under this Contract in compliance with all existing and future applicable laws, rules, regulations, and codes of the United States, and the State of Colorado and with the City Charter, ordinances, Executive Orders, and rules and regulations of the City.

**B.** Contractor shall perform all work in compliance with Executive Order 123 regarding Sustainability as may be directed by the City, including the requirement that all new City buildings and major renovations will be certified to the applicable LEED Gold Certification,

with the goal of achieving LEED Platinum where economically feasible. Contractor also shall comply with all applicable DEN design and construction standards, including the DEN Design Standards Manuals, which are incorporated herein by reference. Current versions can be found at: https://business.flydenver.com/bizops/bizRequirements.asp.

## **20. PREVAILING WAGE REQUIREMENTS:**

**A.** In addition to the Davis-Bacon Requirements contained in *Exhibit A*, Contractor shall comply with, and agrees to be bound by, all requirements, conditions and determinations of the City regarding the Payment of Prevailing Wages Ordinance, D.R.M.C. §§20-76 through 20-79, including, but not limited to, the requirement that every covered worker working on a City-owned or leased building or on City-owned land shall be paid no less than the prevailing wages and fringe benefits in effect on the date the bid or request for proposal was advertised. In the event a request for bids, or a request for proposal, was not advertised, Contractor shall pay every covered worker no less than the prevailing wages and fringe benefits in effect on the date funds for the Contract were encumbered.

Date bid or proposal issuance was advertised April 25, 2024.

**B.** Prevailing wage and fringe rates will adjust on the yearly anniversary of the actual date of bid or proposal issuance, if applicable, or the date of the written encumbrance if no bid/proposal issuance date is applicable. Unless expressly provided for in this Contract, Contractor will receive no additional compensation for increases in prevailing wages or fringe rates.

**C.** Contractor shall provide the Auditor of the City and County of Denver with a list of all subcontractors providing any services under the Contract.

**D.** Contractor shall provide the Auditor with electronically-certified payroll records for all covered workers employed under the Contract in a manner specified by the Auditor.

**E.** Contractor shall prominently post at the work site the current prevailing wage and fringe rates. The posting must inform workers that any complaints regarding the payment of prevailing wages or fringe benefits may be submitted to the Denver Auditor by calling 720-913-5000 or emailing auditor@denvergov.org.

**F.** If Contractor fails to pay workers as required by the Prevailing Wage Ordinance, Contractor will not be paid until documentation of payment satisfactory to the Auditor has been provided. The Auditor may enforce the Prevailing Wage Ordinance in a manner provided by law, including the Prevailing Wage Ordinance. The City also may, by written notice, suspend or terminate work if Contractor fails to pay required wages and fringe rates.

# 21. CITY PROMPT PAYMENT:

**A.** The City will make monthly progress payments to the Contractor for all services performed under this Contract based upon the Contractor's monthly invoices or shall make payments as otherwise provided in this Agreement. The City's Prompt Payment Ordinance, D.R.M.C. §§ 20-107 to 20-118, applies to invoicing and payment under this Contract.

**B.** Final Payment to the Contractor shall not be made until after the Project is accepted, and all certificates of completion, record drawings, reproducible copies, and other deliverables are delivered to the City, and the Contract is otherwise fully performed by the Contractor. The City may, at the discretion of the **Choose an item**. withhold reasonable amounts from billing and the entirety of the final payment until all such requirements are performed to the satisfaction of the **Choose an item**.

## 22. OWNERSHIP AND DELIVERABLES:

Upon payment to Contractor, all records, data, deliverables, and any other work product prepared by Contractor or any custom development work performed by Contractor for the purpose of performing this Contract on or before the day of the payment, whether a periodic or final payment, shall become the sole property of the City. Upon request by the City, or based on any schedule agreed to by Contractor and the City, Contractor shall provide the City with copies of the data/files that have been uploaded to any database maintained by or on behalf of Contractor or otherwise saved or maintained by Contractor as part of the services provided to the City under this Contract. All such data/files shall be provided to the City electronically in a format agreed to by the Parties. Contractor also agrees to allow the City to review any of the procedures Contractor uses in performing any work or other obligations under this Contract, and to make available for inspection any and all notes, documents, materials, and devices used in the preparation for or performance of any of the scope of work, for up to six (6) years after termination of this Contract. Upon written request from the City, Contractor shall deliver any information requested pursuant to this Section within ten (10) business days in the event a schedule or otherwise agreed-upon timeframe does not exist.

## 23. COLORADO OPEN RECORDS ACT:

A. Contractor acknowledges that the City is subject to the provisions of the Colorado Open Records Act ("CORA"), C.R.S. §§ 24-72-201 *et seq.*, and Contractor agrees that it will fully cooperate with the City in the event of a request or lawsuit arising under such act for the disclosure of any materials or information which Contractor asserts is confidential or otherwise exempt from disclosure. Any other provision of this Contract notwithstanding, all materials, records, and information provided by Contractor to the City shall be considered confidential by the City only to the extent provided in CORA, and Contractor agrees that any disclosure of information by the City consistent with the provisions of CORA shall result in no liability of the City.

**B.** In the event of a request to the City for disclosure of such information, time and circumstances permitting, the City will make a good faith effort to advise Contractor of such request in order to give Contractor the opportunity to object to the disclosure of any material Contractor may consider confidential, proprietary, or otherwise exempt from disclosure. In the event Contractor objects to disclosure, the City, in its sole and absolute discretion, may file an application to the Denver District Court for a determination of whether disclosure is required or exempted. In the event a lawsuit to compel disclosure is filed, the City may tender all such material to the court for judicial determination of the issue of disclosure. In both situations, Contractor agrees it will either waive any claim of privilege or confidentiality or intervene in such legal process to protect materials Contractor does not wish disclosed. Contractor agrees to defend,

indemnify, and hold harmless the City, its officers, agents, and employees from any claim, damages, expense, loss, or costs arising out of Contractor's objection to disclosure, including prompt reimbursement to the City of all reasonable attorney's fees, costs, and damages the City may incur directly or may be ordered to pay by such court, including but not limited to time expended by the City Attorney Staff, whose costs shall be computed at the rate specified in Section 5.

# 24. EXAMINATION OF RECORDS AND AUDITS:

A. Any authorized agent of the City, including the City Auditor or his or her representative, has the right to access and the right to examine, copy and retain copies, at City's election in paper or electronic form, any pertinent books, documents, papers and records related to Consultant's performance pursuant to this Agreement, provision of any goods or services to the City, and any other transactions related to this Agreement. Consultant shall cooperate with City representatives and City representatives shall be granted access to the foregoing documents and information during reasonable business hours and until the latter of three (3) years after the final payment under the Agreement, the City Auditor shall be subject to government auditing standards issued by the United States Government Accountability Office by the Comptroller General of the United States, including with respect to disclosure of information acquired during the course of an audit. No examination of records and audit pursuant to this paragraph shall require Parties to make disclosures in violation of state or federal privacy laws. Parties shall at all times comply with D.R.M.C. 20-276.

**B.** Additionally, Contractor agrees until the expiration of six (6) years after the final payment under this Contract, any duly authorized representative of the City, including the CEO or their representative, shall have the right to examine any pertinent books, documents, papers and records of Contractor related to Contractor's performance of this Contract, including communications or correspondence related to Contractor's performance, without regard to whether the work was paid for in whole or in part with federal funds or was otherwise related to a federal grant program.

**C.** In the event the City receives federal funds to be used toward the services performed under this Contract, the Federal Aviation Administration ("FAA"), the Comptroller General of the United States and any other duly authorized representatives shall have access to any books, documents, papers and records of Contractor which are directly pertinent to a specific grant program for the purpose of making audit, examination, excerpts and transcriptions. Contractor further agrees that such records will contain information concerning the hours and specific services performed along with the applicable federal project number.

# **25.** COMPLIANCE WITH DENVER WAGE LAWS:

To the extent applicable to the Contractor's work hereunder, the Contractor shall comply with, and agrees to be bound by, all rules, regulations, requirements, conditions, and City determinations regarding the City's Minimum Wage and Civil Wage Theft Ordinances, Sections 58-1 through 58-26 D.R.M.C., including, but not limited to, the requirement that every covered worker shall be paid all earned wages under applicable state, federal, and city law in accordance with the foregoing

D.R.M.C. Sections. By executing this Agreement, the Contractor expressly acknowledges that the Contractor is aware of the requirements of the City's Minimum Wage and Civil Wage Theft Ordinances and that any failure by the Contractor, or any other individual or entity acting subject to this Agreement, to strictly comply with the foregoing D.R.M.C. Sections shall result in the penalties and other remedies authorized therein.

## 26. COMPLIANCE WITH DISADVANTAGED BUSINESS ENTERPRISE REQUIREMENTS:

Contractor shall comply with Code of Federal Regulations ("C.F.R."), 49 C.F.R. Part 26 ("**DBE Requirements**"), as set forth in <u>Exhibit A</u> and administered by the Division of Small Business Opportunity. The Contractor is committed to, at a minimum, meet the participation goal of \_\_\_\_\_ percent (\_\_\_%) established for this Project, utilizing properly certified DBE subconsultants, subcontractors, suppliers, manufacturers, manufacturer's representatives or brokers.

## 27. SENSITIVE SECURITY INFORMATION:

Contractor acknowledges that, in the course of performing its work under this Contract, Contractor may be given access to Sensitive Security Information ("SSI"), as material is described in the Code of Federal Regulations, 49 C.F.R. Part 1520. Contractor specifically agrees to comply with all requirements of the applicable federal regulations, including but not limited to, 49 C.F.R. Parts 15 and 1520. Contractor understands any questions it may have regarding its obligations with respect to SSI must be referred to DEN's Security Office.

## **28. DEN SECURITY:**

A. Contractor, its officers, authorized officials, employees, agents, subcontractors, and those under its control, shall comply with safety, operational, or security measures required of Contractor or the City by the FAA or TSA. If Contractor, its officers, authorized officials, employees, agents, subcontractors or those under its control, fail or refuse to comply with said measures and such non-compliance results in a monetary penalty being assessed against the City, then, in addition to any other remedies available to the City, Contractor shall fully reimburse the City any fines or penalties levied against the City, and any attorney fees or related costs paid by the City as a result of any such violation. Contractor must pay this amount within fifteen (15) days from the date of the invoice or written notice. Any fines and fees assessed by the FAA or TSA against the City due to the actions of Contractor and/or its agents will be deducted directly from the invoice for that billing period.

**B.** Contractor is responsible for compliance with Airport Security regulations and 49 C.F.R. Parts 1542 (Airport Security) and 14 C.R.F. Parts 139 (Airport Certification and Operations). Any and all violations pertaining to Parts 1542 and 139 resulting in a fine will be passed on to and borne by Contractor. The fee/fine will be deducted from the invoice at time of billing.

## **29. FEDERAL RIGHTS:**

**A.** This Contract is subject and subordinate to the terms, reservations, restrictions and conditions of any existing or future contracts between the City and the United States, the execution of which has been or may be required as a condition precedent to the transfer of federal rights or property to the City for airport purposes, and the expenditure of federal funds for the extension, expansion or development of the Airport System.

(i) <u>General Civil Rights</u>: Contractor agrees to comply with pertinent statutes, Executive Orders and such rules as are promulgated to ensure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or disability be excluded from participating in any activity conducted with or benefiting from Federal Assistance. This provision binds Contractor and subcontractors from the bid solicitation period through the completion of the Contract. This provision is in addition to that required of Title VI of the Civil Rights Act of 1964.

(ii) <u>Federal Fair Labor Standards Act</u>: This Contract incorporates by reference the provisions of 29 C.F.R. Part 201, 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. Contractor agrees to incorporate by reference the provisions of FLSA in all contracts and subcontracts resulting from this Contract. Contractor has full responsibility to monitor compliance to the referenced regulation. Contractor must address any claims or disputes arising from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

(iii) <u>Occupational Safety and Health Act</u>: This Contract incorporates by reference the requirements of 29 C.F.R. Part 1910 with the same force and effect as if given in full text. Contractor must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. Contractor retains full responsibility to monitor its compliance and any subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (29 C.F.R. Part 1910). Contractor 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.

(iv) Contractor covenants it will include the provisions of this section in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Federal Acts, Regulations and directives issued pursuant thereto. Contractor covenants it will take action with respect to any subcontract or procurement as the City or the FAA may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, Contractor may request the City to enter into any litigation to protect the interests of the City. In addition, Contractor may request the United States to enter into the litigation to protect the interests of the United States.

## **30.** USE, POSSESSION OR SALE OF ALCOHOL OR DRUGS:

Contractor shall cooperate and comply with the provisions of Denver Executive Order No. 94 and <u>Attachment A</u> thereto concerning the use, possession or sale of alcohol or drugs. Violation of these provisions or refusal to cooperate with implementation of the policy can result in the City barring Contractor from City facilities or participating in City operations.

## **31. CITY SMOKING POLICY**

Contractor and its officers, agents and employees shall cooperate and comply with the provisions of Denver Executive Order No. 99 and the Colorado Indoor Clean Air Act, prohibiting smoking in all City buildings and facilities.

## **32.** CITY EXECUTION OF CONTRACT:

This Contract is expressly subject to, and shall become effective upon, the execution of all signatories of the City and, if required, the approval of Denver City Council. This Contract may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same.

## **33.** ELECTRONIC SIGNATURES AND ELECTRONIC RECORDS:

The Contract, and any other documents requiring a signature hereunder, may be signed electronically by the City and/or Contractor in the manner specified by the City. The Parties agree not to deny the legal effect or enforceability of the Contract solely because it is in electronic form or because an electronic record was used in its formation. The Parties agree not to object to the admissibility of the Contract in the form of an electronic record, or a paper copy of an electronic document, or a paper copy of a document bearing an electronic signature, on the ground that it is an electronic record or electronic signature or that it is not in its original form or is not an original.

# [SIGNATURE PAGES FOLLOW]

#### X. ATTACHMENT 6, PERFORMANCE AND PAYMENT BOND

## PERFORMANCE BOND

| KNOW ALL MEN BY THESE  | PRESENTS, that we, the undersigne   | d [Bidder name],                            |  |
|--|-------------------------------------|---|--|
| a corporation organized un   | der the laws of the State of        | [Bidder state], hereinafter referred        |  |
| to as the "Contractor" and _   | [Bond issuer], a co                 | rporation organized under the laws of the   |  |
| State of   | [Bond company state], and autho     | rized to transact business in the State of  |  |
| Colorado, hereinafter referred to as Surety, are held and firmly bound unto the CITY AND COUNTY OF |                                     |   |  |
| DENVER, a municipal corpo  | ration of the State of Colorado, he | reinafter referred to as the "CITY", in the |  |
| penal sum of   |                                     | [Bid amount text] Dollars                   |  |
| (\$), la   | wful money of the United States o   | f America, for the payment of which sum     |  |
| the Contractor and Surety assigns, jointly and severally   | -                                   | executors, administrators, successors and   |  |

**WHEREAS**, the above Contractor has, as of the date of execution listed on the contract signature page, entered into a written contract with the City for furnishing all labor, materials, equipment, tools, superintendence, and other facilities and accessories for the construction of Contract Number 202476290, RWY 17L-35R Wildlife Hazard Mitigation Phase 2 All Drainages, DEN, in accordance with the Technical Specifications, Contract Drawings and all other Contract Documents therefor which are incorporated herein by reference and made a part hereof, and are herein referred to as the Contract.

**NOW, THEREFORE**, the condition of this performance bond is such that if the Contractor:

- 1. Promptly and faithfully observes, abides by, and performs each and every covenant, condition, and part of said Contract, including, but not limited to, its warranty provisions, in the time and manner prescribed in the Contract, and
- 2. Pays the City all losses, damages (liquidated or actual, including, but not limited to, damages caused by delays in the performance of the Contract), expenses, costs and attorneys' fees, that the City sustains resulting from any breach or default by the Contractor under the Contract, then this bond is void; otherwise, it shall remain in full force and effect.

**IN ADDITION**, if said Contractor fails to duly pay for any labor, materials, team hire, sustenance, provisions, provender, or any other supplies used or consumed by said Contractor or its subcontractors in its performance of the work contracted to be done or fails to pay any person who supplies rental machinery, tools, or equipment, all amounts due as the result of the use of such machinery, tools, or equipment in the prosecution of the work, the Surety shall pay the same in an amount not exceeding the amount of this obligation, together with interest as provided by law.

**PROVIDED FURTHER**, that the said Surety, for value received, hereby stipulates, and agrees that any and all changes in the Contract or compliance or noncompliance with the formalities in the Contract for making such changes shall not affect the Surety's obligations under this bond and the Surety hereby waives notice of any such changes.

(End of Page)

**IN WITNESS WHEREOF**, said Contractor and said Surety have executed these presents as of this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_.

CONTRACTOR

Ву:\_\_\_\_\_

President

SURETY

Ву:\_\_\_\_\_

Attorney-in-Fact

(Accompany this bond with Attorney-in-Fact's authority from the Surety to execute bond, certified to include the date of the bond.)

### **PAYMENT BOND**

| KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned              |  |
|---|--|
| [Bidder name], a corporation organized under the laws of the State    | of [Bidder state],                       |
| hereinafter referred to as the "Contractor" and                       | [Bonding company                         |
| <u>name</u> ], a corporation organized under the laws of the State of | [Bonding company                         |
| state], and authorized to transact business in the State of Colorado, | , hereinafter referred to as Surety, are |
| held and firmly bound unto the CITY AND COUNTY OF DENVER, a           | municipal corporation of the State of    |
| Colorado, hereinafter referred to as the "CITY", in the penal sum of  |  |
|   |  |

[Bid amount text] Dollars

(\$\_\_\_\_\_\_), lawful money of the United States of America, for the payment of which sum the Contractor and Surety bind themselves and their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

**WHEREAS**, the above Contractor has entered into a written contract with the City for furnishing all labor, materials, tools, superintendence, and other facilities and accessories for the construction of Contract No. 202476290, RWY 17L-35R Wildlife Hazard Mitigation Phase 2 All Drainages. DEN, in accordance with the Technical Specifications, Contract Drawings and all other Contract Documents therefor which are incorporated herein by reference and made a part hereof and are herein referred to as the Contract.

**NOW**, **THEREFORE**, the condition of this payment bond obligation is such that if the Contractor shall at all times promptly make payments of all amounts lawfully due to all persons supplying or furnishing it or its subcontractors with labor and materials, rental machinery, tools, or equipment, used or performed in the prosecution of work provided for in the above Contract and shall indemnify and save harmless the City to the extent of any and all payments in connection with the carrying out of such Contract which the City may be required to make under the law, then this obligation shall be null and void, otherwise, it shall remain in full force and effect;

**PROVIDED FURTHER**, that the said Surety, for value received, hereby stipulates, and agrees that any and all changes in the Contract, or compliance or noncompliance with the formalities in the Contract for making such changes shall not affect the Surety's obligations under this bond and the Surety hereby waives notice of any such changes.

[END OF PAGE]

Page 46 Attachment 6, Performance and Payment Bond

**IN WITNESS WHEREOF**, said Contractor and said Surety have executed these presents as of this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_,

CONTRACTOR

By:\_\_\_\_\_ President

SURETY

By:\_\_\_\_\_ Attorney-in-Fact

(Accompany this bond with Attorney-in-Fact's authority from the Surety to execute bond, certified to include the date of the bond.)

#### XI. ATTACHMENT 7, PREVAILING WAGES

## **PREVAILING WAGES**

Prevailing Wage information which applies to this contract are contained in the pages immediately following this page.

These pages are not included in the page numbering of this Contract document

# **City and County of Denver**



TIMOTHY M. O'BRIEN, CPA AUDITOR

201 West Colfax Avenue, #705 • Denver, Colorado 80202 (720) 913-5000 • Fax (720) 913-5253 • denvergov.org/auditor

| TO:      | All Users of the City and County of Denver Prevailing Wage Schedules |
|----------|--|
| FROM:    | Luis Osorio Jimenez, Prevailing Wage Administrator                   |
| DATE:    | August 6, 2024   |
| SUBJECT: | Latest Change to Prevailing Wage Schedules                           |

The effective date for this publication will be, **Tuesday, August 6, 2024,** and applies to the City and County of Denver for **HIGHWAY CONSTRUCTION PROJECTS** (does not include residential construction consisting of single family homes and apartments up to and including 4 stories) in accordance with the Denver Revised Municipal Code, Section 20-76(c).

> General Wage Decision No. CO 20240009 Superseded General Decision No. CO 20230009 Modification No. 3 Publication Date: 8/2/2024 (9 pages)

Unless otherwise specified in this document, apprentices shall be permitted only if they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor (DOL). The employer and the individual apprentice must be registered in a program which has received prior approval by the DOL. Any employer who employs an apprentice and is found to be in violation of this provision shall be required to pay said apprentice the full journeyman scale.

Attachments as listed above.

In accordance to the amendment of Section 20-76, Division 3, Article IV, Chapter 20 of the Denver Revised Municipal Code enacted on Aug 21<sup>st</sup>, 2023, the Prevailing Wage Administrator is authorized to approve and adjust all Davis Bacon classifications under \$18.29 to comply with the city's minimum wage. Contractors will also have to comply with the established Minimum Wage of \$18.29 for all apprentice classifications as base rate. Fringes will be added in to the base rate amount.

"General Decision Number: CO20240009 08/02/2024

Superseded General Decision Number: CO20230009

State: Colorado

Construction Type: Highway

Counties: Denver and Douglas Counties in Colorado.

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)(1).

| If the contract is entered    | . | Executive Order 14026      |
|-------------------------------|---|----------------------------|
| into on or after January 30,  |   | generally applies to the   |
| 2022, or the contract is      |   | contract.                  |
| renewed or extended (e.g., an | . | The contractor must pay    |
| option is exercised) on or    |   | all covered workers at     |
| after January 30, 2022:       |   | least \$18.29 per hour (or |
|                               |   | the applicable wage rate   |
|                               |   | listed on this wage        |
|                               |   | determination, if it is    |
|                               |   | higher) for all hours      |
|                               |   |                            |

1 spent performing on the | contract in 2024. |If the contract was awarded on|. Executive Order 13658 |or between January 1, 2015 and| generally applies to the |January 29, 2022, and the | contract. |contract is not renewed or |. The contractor must pay allI |extended on or after January | covered workers at least 30, 2022: | \$18.29 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 2024. 

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 <u>http://www.dol.gov/whd/govcontracts</u>.

| Modification Number<br>0<br>1<br>2<br>3   | Publication<br>01/05/2024<br>05/31/2024<br>07/05/2024<br>08/02/2024 | Date   |                          |
|---|---|--------|--------------------------|
| CARP9901-008 05/01/2024   | 4   |        |                          |
|   | R   | ates   | Fringes                  |
| CARPENTER (Form Work On   | ly)\$   | 33.11  | 12.17                    |
| ELEC0068-016 03/01/2013   | 1   |        |                          |
|   | R   | ates   | Fringes                  |
| TRAFFIC SIGNALIZATION:<br>Traffic Signal Installat<br>Zone 1<br>Zone 2  | \$  |        | 4.75%+8.68<br>4.75%+8.68 |
| TRAFFIC SIGNAL INSTALLED  | R ZONE DEFIN  | ITIONS |                          |
| Zone 1 shall be a 35 mile radius, measured from the<br>following addresses in each of the following cities:<br>Colorado Springs - Nevada & Bijou<br>Denver - Ellsworth Avenue & Broadway<br>Ft. Collins - Prospect & College<br>Grand Junction - 12th & North Avenue<br>Pueblo - I-25 & Highway 50<br>All work outside of these areas shall be paid Zone 2 rates. |   |        |                          |
| * ENGI0009-008 05/01/202  | 24  |        |                          |
| ENG10009-000-007017202  |   | ates   | Fringes                  |
| POWER EQUIPMENT OPERATOR<br>(3)-Hydraulic Back<br>(Wheel Mounted, und<br>yds), Hydraulic Bac<br>(Backhoe/Loader   | noe<br>der 3/4  |        |                          |

| combination), Drill Rig<br>Caisson (smaller than<br>Watson 2500 and similar),  |       |                |
|--|-------|----------------|
| Loader (up to and<br>including 6 cu. yd.)\$<br>(3)-Loader (under 6 cu.   | 35.03 | 15.20          |
| yd.)<br>Denver County\$<br>(3)-Motor Grader (blade-  | 35.03 | 15.20          |
| rough)<br>Douglas County\$<br>(4)-Crane (50 tons and   | 33.19 | 15.20          |
| under), Scraper (single<br>bowl, under 40 cu. yd)\$<br>(4)-Loader (over 6 cu. yd)  | 35.78 | 15.20          |
| Denver County\$<br>(5)-Drill Rig Caisson<br>(Watson 2500 similar or<br>larger), Crane (51-90<br>tons), Scraper (40 cu.yd | 35.20 | 15.20          |
| and over),\$<br>(5)-Motor Grader (blade-   | 35.41 | 15.20          |
| <br>finish)<br>Douglas County\$<br>(6)-Crane (91-140 tons)\$   |       | 15.20<br>15.20 |

\_\_\_\_

\* SUCO2011-004 09/15/2011

|   | Rates       | Fringes      |
|---|-------------|--------------|
| CARPENTER (Excludes Form Work)                          | \$ 19.27    | 5.08         |
| CEMENT MASON/CONCRETE FINISHER<br>Denver<br>Douglas     |             | 5.75<br>3.00 |
| ELECTRICIAN (Excludes Traffic<br>Signal Installation)   | \$ 35.13    | 6.83         |
| FENCE ERECTOR (Excludes<br>Link/Cyclone Fence Erection) | \$ 18.42 ** | 3.20         |
| GUARDRAIL INSTALLER                                     | \$ 18.29 ** | 3.20         |

| HIGHWAY/PARKING LOT<br>STRIPING:Painter<br>Denver\$<br>Douglas\$  |                      | 3.21<br>3.21                 |
|---|----------------------|------------------------------|
| IRONWORKER, REINFORCING<br>(Excludes Guardrail<br>Installation)\$   | 55.25 **             | 3.65                         |
| IRONWORKER, STRUCTURAL/ORNAMENTAL<br>(Includes Link/Cyclone Fence<br>Erection, Excludes Guardrail<br>Installation)\$    | 37.23 **             | 12.79                        |
| LABORER<br>Asphalt Raker\$<br>Asphalt Shoveler\$<br>Asphalt Spreader\$  | 21.21                | 4.25<br>4.25<br>4.65         |
| Common or General<br>Denver\$<br>Douglas\$<br>Concrete Saw (Hand Held)\$<br>Landscape and Irrigation\$<br>Mason Tender- | 18.28 **<br>18.29 ** | 6.77<br>4.25<br>6.14<br>3.16 |
| Cement/Concrete<br>Denver\$<br>Douglas\$<br>Pipelayer<br>Denver\$   | 18.96 **             | 4.04<br>4.25<br>2.41         |
| Denver<br>Douglas\$<br>Traffic Control (Flagger)\$<br>Traffic Control (Sets<br>Up/Moves Barrels, Cones,                 | 18.96**              | 2.41<br>2.18<br>3.05         |
| Install Signs, Arrow<br>Boards and Place<br>Stationary Flags)(Excludes<br>Flaggers)\$                                   | 21.17 **             | 3.22                         |
| PAINTER (Spray Only)\$<br>POWER EQUIPMENT OPERATOR:   | 18.29**              | 2.87                         |
| Asphalt Laydown<br>Denver\$   | 22.67                | 8.72                         |

| Douglas\$                  | 23.67    | 8.47 |
|----------------------------|----------|------|
| Asphalt Paver              |          |      |
| Denver\$                   | 24.97    | 6.13 |
| Douglas\$                  | 25.44    | 3.50 |
| Asphalt Roller             |          |      |
| Denver\$                   | 23.13    | 7.55 |
| Douglas\$                  | 23.63    | 6.43 |
| Asphalt Spreader\$         |          | 8.72 |
| Backhoe/Trackhoe           |          |      |
| Douglas\$                  | 23.82    | 6.00 |
| Bobcat/Skid Loader\$       |          | 4.28 |
| Boom\$                     | 22.67    | 8.72 |
| Broom/Sweeper              |          |      |
| Denver\$                   | 22.47    | 8.72 |
| Douglas\$                  | 22.96    | 8.22 |
| Bulldozer\$                |          | 5.59 |
| Concrete Pump\$            | 21.60    | 5.21 |
| Drill                      |          |      |
| Denver\$                   | 20.48    | 4.71 |
| Douglas\$                  |          | 2.66 |
| Forklift\$                 | 18.29 ** | 4.68 |
| Grader/Blade               |          |      |
| Denver\$                   | 22.67    | 8.72 |
| Guardrail/Post Driver\$    |          | 4.41 |
| Loader (Front End)         |          |      |
| Douglas\$                  | 21.67    | 8.22 |
| Mechanic                   |          |      |
| Denver\$                   | 22.89    | 8.72 |
| Douglas\$                  |          | 8.22 |
| Oiler                      |          |      |
| Denver\$                   | 23.73    | 8.41 |
| Douglas\$                  |          | 7.67 |
| Roller/Compactor (Dirt and |          |      |
| Grade Compaction)          |          |      |
| Denver\$                   | 20.30    | 5.51 |
| Douglas\$                  |          | 4.86 |
| Rotomill\$                 | 18.29 ** | 4.41 |
| Screed                     |          |      |
| Denver\$                   | 22.67    | 8.38 |
| Douglas\$                  |          | 1.40 |
| Tractor\$                  | 18.29 ** | 2.95 |
|                            |          |      |

TRAFFIC SIGNALIZATION: Groundsman

| Denver\$ 18.29                   | )    | 3.41 |
|----------------------------------|------|------|
| Douglas\$ 18.6                   | 7    | 7.17 |
|                                  |      |      |
| TRUCK DRIVER                     |      |      |
| Distributor                      |      |      |
| Denver\$ 19.12                   | 2    | 5.82 |
| Douglas\$ 18.29                  | ) ** | 5.27 |
| Dump Truck                       |      |      |
| Denver\$ 18.29                   | ) ** | 5.27 |
| Douglas\$ 19.41                  | **   | 5.27 |
| Lowboy Truck\$ 18.29             | )    | 5.27 |
| Mechanic\$ 26.48                 |      | 3.50 |
| Multi-Purpose Specialty &        |      |      |
| Hoisting Truck                   |      |      |
| Denver\$ 18.29                   | )    | 3.17 |
| Douglas\$ 20.85                  |      | 2.88 |
| Pickup and Pilot Car             |      |      |
| Denver\$ 18.29                   | ) ** | 3.77 |
| Douglas\$ 20.48                  |      | 3.68 |
| Semi/Trailer Truck\$ 18.39       | )    | 4.13 |
| Truck Mounted Attenuator\$ 18.29 | ) ** | 3.22 |
| Water Truck                      |      |      |
| Denver\$ 26.2                    | 7    | 5.27 |
| Douglas\$ 19.40                  |      | 2.58 |
|                                  |      |      |

\_\_\_\_

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

#### Administrator Supplemental Rates (Specific to the Denver projects) Revision Date: 01-01-2024

| Classification                   |                                  | Base    | Fringe             |
|----------------------------------|----------------------------------|---------|--------------------|
| Guard Rail Installer             |                                  | \$18.29 | \$3.20             |
| Highway Parking Lot Striping:    |                                  |         |                    |
| Painter                          |                                  | \$18.29 | \$3.21             |
| Laborer                          | Removal of Asbestos              | \$21.03 | \$8.55             |
| Laborer (Landscape & Irrigation) |                                  | \$18.29 | \$3.16             |
| Line Construction                | Lineman, Gas Fitter/Welder       | \$36.88 | \$9.55             |
|                                  | Line Eq Operator/Line Truck Crew | \$25.74 | \$8.09             |
| Millwright                       |                                  | \$28.00 | \$10.00            |
| Pipefitter                       |                                  | \$30.45 | \$12.85            |
| Plumber                          |                                  | \$30.19 | \$13.55            |
| Power Equipment Operator         |                                  |         |                    |
| (Tunnels Above and Below         | Group 1                          | \$25.12 | \$10.81            |
| Ground, shafts and raises):      |                                  |         |                    |
|                                  |                                  | 445 45  | <b>*</b> • • • • • |
|                                  | Group 2                          | \$25.47 | \$10.85            |
|                                  | Group 3                          | \$25.57 | \$10.86            |
|                                  | Group 4                          | \$25.82 | \$10.88            |
|                                  | Group 5                          | \$25.97 | \$10.90            |
|                                  | Group 6                          | \$26.12 | \$10.91            |
|                                  | Group 7                          | \$26.37 | \$10.94            |
| Power Equipment Operator         | Group 1                          | \$22.97 | \$10.60            |
|                                  | Group 2                          | \$23.32 | \$10.63            |
|                                  | Group 3                          | \$23.67 | \$10.67            |
|                                  | Group 4                          | \$23.82 | \$10.68            |
|                                  | Group 5                          | \$23.97 | \$10.70            |
|                                  | Group 6                          | \$24.12 | \$10.71            |
|                                  | Group 7                          | \$24.88 | \$10.79            |
| Truck Driver                     | Group 1                          | \$18.42 | \$10.00            |
|                                  | Group 2                          | \$19.14 | \$10.07            |
|                                  | Group 3                          | \$19.48 | \$10.11            |
|                                  | Group 4                          | \$20.01 | \$10.16            |
|                                  | Group 5                          | \$20.66 | \$10.23            |
|                                  | Group 6                          | \$21.46 | \$10.31            |
| Truck Driver: Truck Mounted      |                                  |         |                    |
| Attenuator                       |                                  | \$18.29 | \$3.22             |

Go to <u>http://www.denvergov.org/Auditor</u> to view the Prevailing Wage Clarification Document for a list of complete classifications used

#### XII. ATTACHMENT 8, LIEN RELEASE FORM

|     | > |
|-----|---|
| DEN |   |

## DENVER INTERNATIONAL AIRPORT

FINAL LIEN RELEASE – CONSTRUCTION (Subcontractor)

| Project:              |       | Date:  |      |
|-----------------------|-------|--|------|
| City Contract No      |       | Subcontractor Contract No.                         |      |
|                       |       | Dated:, 20,  |      |
| FROM:                 |       |  |      |
| Subcontractor:        | (1)   | Last Progress Payment for billing<br>period ending | , 20 |
| Address:              |       | \$   |      |
| City/State:           | (2)   | Does not apply                                     |      |
| Telephone:            |       |  |      |
| TO:                   |       |  |      |
| Contractor:           | (3)   | Does not apply                                     |      |
| Address:              |       |  |      |
| City/State:           | (4)   | Total Paid to Date:                                |      |
|                       |       | \$   |      |
| ()SBE()DBE()MBE ()WBE | ( ) N | on   |      |

The Undersigned hereby certifies that all costs, charges, or expenses incurred by the undersigned or on behalf of the undersigned for any work, labor or services performed and for any materials, supplies or equipment provided on the above referenced Project or used in connection with the above referenced Subcontract (the "Work Effort") have been duly paid in full.

The Undersigned further certifies that each of the undersigned's subcontractors and suppliers that incurred or caused to be incurred, on their behalf, costs, charges, or expenses in connection with the undersigned's Work Effort on the above referenced Project have been duly paid in full.

The undersigned Subcontractor hereby (1) acknowledges receipt of the progress payment referred to above as the Last Progress Payment which, when added to the total of all previous progress payments, constitutes full

#### Attachment 8, Lien Release Form

payment for all labor, services, materials and supplies which the undersigned has provided for use in and upon the project described above through \_\_\_\_\_\_\_, 20\_\_\_\_\_ and, (2) hereby releases the Contractor, Surety, the City and County of Denver, and any intermediate subcontractor or supplier of any tier from any and all claims prior to the above mentioned date.

The Subcontractor also hereby agrees that the Contractor, Surety, the City and County of Denver, and any intermediate subcontractor or supplier of any tier shall be released from any and all claims arising out of its performance or non-performance of any contract associated with the above project.

As additional consideration for the payments referenced above, the undersigned agrees to defend, indemnify and hold harmless the City, its officers, employees, agents and assigns and the above-referenced Contractor from and against all costs, losses, damages, causes of action, judgments under the subcontract and expenses arising out of or in connection with any claim or claims against the City or the Contractor which arise out of the Undersigned's performance of the Work Effort and which may be asserted by the Undersigned or any of its suppliers or subcontractors of any tier or any of their representatives, officers, agents, or employees.

It is acknowledged that this release is for the benefit of and may be relied upon by the City and the referenced Contractor.

The foregoing shall not relieve the undersigned of any obligation under the provisions of the Undersigned's subcontract, as the subcontract may have been amended, which by their nature survive completion of the Undersigned's work effort including, without limitation, warranties, guarantees, insurance requirements and indemnities.

Subcontractor:

Certified by:

Title:

Date:

#### [END OF BID DATA FORMS]

#### XIII. ATTACHMENT 9, FEDERAL FUNDING PROCUREMENT NOTICES AND FORMS

#### A2.3. 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: 13.8%

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.
- 4. As used in this notice and in the contract resulting from this solicitation, the "covered area" is City and County of Denver, Colorado

#### FAA BUY AMERICAN PREFERENCE – CONSTRUCTION PROJECTS

#### A4.3.1.BUY AMERICAN PREFERENCE

The Contractor certifies that its bid/offer is in compliance with 49 USC § 50101, BABA and other related Made in America Laws,<sup>1</sup> 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 construction 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.

<sup>&</sup>lt;sup>1</sup> 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 America," 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.

#### A4.3.2 CERTIFICATE OF COMPLIANCE WITH FAA BUY AMERICAN PREFERENCE – CONSTRUCTION

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 ( $\checkmark$ ) 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

#### A6.3.1 TITLE VI SOLICITATION NOTICE

The City and County of Denver, 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, [select businesses, or disadvantaged business enterprises or airport concession 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.

#### A11.3. CERTIFICATION OF OFFERER/BIDDER REGARDING DEBARMENT

#### **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.

#### A12.3.1. DISADVANTAGED BUSINESS ENTERPRISES (DBE)

#### Bid information submitted as a matter of bidder 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 bid responsiveness, the Bidder or Offeror must submit the following information with its proposal on the forms provided herein:

1) The names and addresses of 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; and

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.

#### A12.4.2 Race/Gender Neutral Means

The requirements of 49 CFR part 26 apply to this contract. It is the policy of the City and County of Denver 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.

### A14.3 PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

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)].

#### A17.3 FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 CFR part 201, 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.

#### A18.3. 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.

#### A24.3. CERTIFICATION OF BIDDER REGARDING TAX DELINQUENCY AND FELONY CONVICTIONS

The applicant must complete the following two certification statements. The applicant must indicate its current status as it relates to tax delinquency and felony conviction by inserting a checkmark ( $\checkmark$ ) in the space following the applicable response. The applicant agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification in all lower tier subcontracts.

#### Certifications

The applicant represents that it is ( 22) is not ( 22) 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.

The applicant represents that it is ( 22) is not ( 22) is not a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months.

#### Note

If an applicant responds in the affirmative to either of the above representations, the applicant is ineligible to receive an award unless the sponsor has received notification from the agency suspension and debarment official (SDO) that the SDO has considered suspension or debarment and determined that further action is not required to protect the Government's interests. The applicant therefore must provide information to the owner about its tax liability or conviction to the Owner, who will then notify the FAA Airports District Office, which will then notify the agency's SDO to facilitate completion of the required considerations before award decisions are made.

#### **Term Definitions-**

**Felony conviction:** Felony conviction means 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 18U.S.C. § 3559.

**Tax Delinquency**: 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.

Date

Signature

**Company Name** 

Title

#### A26.3 TRADE RESTRICTION CERTIFICATION

By submission of an offer, the Offeror (Contractor) certifies that with respect to this solicitation and any resultant contract, the Offeror –

- 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 Section 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.

#### XIV. ATTACHMENT 10, SPECIAL CONDITIONS

# **SPECIAL CONDITIONS**

# The special conditions relative to this contract are contained in the pages immediately following this page.

These pages are not included in the page numbering of this contract document.

#### SC-1 CONSTRUCTION CONTRACT GENERAL CONDITIONS

The City and County of Denver ("City") Construction Contract General Conditions, which constitute a part of the Contract Documents, are outlined in a separately published document entitled "City and County of Denver, Department of Aviation and Department of Public Works, Standard Specifications for Construction, General Contract Conditions," 2011 Edition (informally referred to as the Yellow Book).

The General Conditions are also available on the City's website at: <a href="https://www.denvergov.org/content/dam/denvergov/Portals/">https://www.denvergov.org/content/dam/denvergov/Portals/</a>

#### SC-2 CONTRACT DOCUMENTS PROVIDED BY DENVER INTERNATIONAL AIRPORT ("DEN")

The City will provide the following Contract Documents to the Contractor in electronic format at no expense to the Contractor:

Documents:

- A. Division 1 Specifications dated September 4, 2024
- B. Division 2 Specifications dated September 4, 2024
- C. Construction Drawings dated September 4, 2024
- D. Construction Safety and Phasing Plan September 4, 2024

Additional copies of the Contract Documents may be furnished to the Contractor at the Contractor's expense. The Contractor shall be responsible for supplying all subcontractors with copies of the Contract Documents at Contractor's expense.

#### SC-3 REVISIONS TO G.C. 201

The second sentence of General Condition 201 is amended to read: "The unit responsible for this management and control is the Design, Engineering, and Construction Division ("DEC") under the supervision of the Senior Vice President for DEC."

#### SC-4 CLARIFICATION TO GC 217 CITY LINE OF AUTHORITY AND CONTACTS

In accordance with General Condition 212, the City's line of authority for administration of this Contract is:

<u>Chief Executive Officer</u>, Department of Aviation (CEO). Executive Office, 9th Floor, Airport Office Building, 8500 Peña Boulevard, Denver, CO 80249. Any reference to the Manager of Aviation shall also mean CEO.

<u>Executive Vice President</u> – Chief Construction and Infrastructure Officer (EVP-CCIO) who reports to the CEO. Executive Office, 9th Floor, Airport Office Building, 8500 Peña Boulevard, Denver, CO 80249.

<u>Senior Vice President</u> – Design, Engineering and Construction (SVP-DEC) who reports to the EVP-CCIO. DEC, Airport Office Building, 8500 Peña Boulevard, Denver, CO 80249.

<u>Supervisor, DEN-DEC Airside</u>, who reports to the SVP-DEC. DEC, Airport Office Building, 8500 Peña Boulevard, Denver, CO 80249.

The <u>Project Manager</u> is the City representative with day-to-day administrative responsibility of this Contract, and reports to the Director of Facility Design and Construction. All notices, requests, pay applications (pursuant to G.C. 902) and other correspondence from the Contractor shall be sent to the assigned Project Manager unless otherwise provided in this Contract. The Project Manager for this Contract is: Cole Miller, DEC, Airport Office Building, 8500 Peña Boulevard, Denver, CO 80249, phone (801) 664-8785.

The CEO may occasionally substitute a different City official as the designated "SVP-DEC" hereunder, and any such change will be effective upon the issuance of written notice to the Contractor, which identifies the successor SVP-DEC. The SVP-DEC may, from time to time, change the assigned Project Manager, and any such change will be effective upon the issuance of written notice to the Contractor, which identifies the successor Project Manager.

#### SC-5 REVISIONS TO GC 401; FEDERAL REQUIREMENTS IN CONTRACT DOCUMENTS

The Division 2 Specifications included in the Contract Documents contain certain provisions required by Federal law, regulation, and/or policy. Accordingly, in the event of any discrepancy between these required Federal terms and any terms of the Contract, the General Conditions, the Special Conditions, or other Contract Documents, the Federal terms will apply. GC 401.3, paragraph B, is amended to read: "General Conditions shall be given precedence over Technical Specifications except that if, and to the extent that, the Technical Specifications provide for a higher standard or more stringent requirements than the General Conditions or the Special Conditions, the Technical Specifications shall be given precedence in such respects."

#### SC-6 CLARIFICATION TO GC 501 CONTRACTOR PERFORMANCE; SUBCONTRACTING

With respect to General Condition 501 and Federal General Provision 80-01, no more than sixty-five percent (65%) of the Work may be subcontracted. If it is determined to be in the City's best interest, this percentage may be modified throughout the course of the Project by the SVP-DEC.

#### SC-7 COOPERATION WITH OTHERS/ONGOING WORK WHICH MAY BE OVERLAPPING

The Technical Specifications describe the constraints on the physical work site areas. These descriptions are not exhaustive, and the Contractor is required to coordinate its activities and work as may be required to meet Federal Aviation Administration ("FAA") or City requirements while performing the Work at Denver International Airport ("DEN" or "Airport").

Without limiting the foregoing, other contracts administered by the City may involve work overlapping or adjoining the Work under this Contract and may be performed concurrently with the Work performed under this Contract. The Contractor is required to coordinate its performance of the Work with all other contractors, parties and stakeholders, regardless of whether such other projects are listed herein.

| Contract Number | Description                                  |
|-----------------|--|
| 202475020       | Runway 17R-35L Pavement Rehabilitation       |
| 2024            | Taxiway CN and Taxilane West Extension       |
| TBD             | Taxiways F, G, and H Pavement Rehabilitation |

#### SC-8 PERFORMANCE AND COMPLETION OF THE WORK

The Work to be performed under the Contract is described in the Technical Specifications and Contract Drawings. The Contractor shall complete the Work within 120 consecutive calendar days from Notice to Proceed (NTP).

The Work to be performed under the Contract is divided into the Milestone Areas which are described in the Technical Specifications or Contract Drawings (each a "Milestone" and collectively the "Milestones"). The Contractor shall complete the work included within each Milestone within the number of days set forth in Federal Provision Section 80 of the Division 2 Specifications and the Construction Safety and Phasing Plan (CSPP), both included in the Contract Documents.

#### SC-9 LIQUIDATED DAMAGES

Liquidated damages associated with this project are defined in Federal General Provision Section 80-08 of the Division 2 Specifications, included in the Contract Documents. Said Section 80-08 of the Division 2 Specifications, Section 9 of the Contract, and General Condition 602 cover payment

and withholding of liquidated damages.

#### SC-10 FACILITY SECURITY AND PERSONNEL ACCESS

The Contractor shall conduct all its activities at DEN in compliance with DEN's Airport Security rules and regulations, which are administered by DENs Airport Operations Division. The Contractor shall obtain the proper access authorizations for its employees, subcontractors and suppliers (i.e., Badges and Permits), and shall be responsible for such persons' compliance with all the Airport Rules and Regulations. A copy of the Contractors' section of the Airport Security rules and regulations are available for Contractor review at the Airport Access Services Office, Concourse A East Subcore, 4th Level. Persons regularly entering the construction areas must obtain personnel access badges from the Airport Access Services Office and must display badges, at all times, upon entering the construction, restricted and sterile areas of the airport. Any employee, subcontractor or supplier who violates such rules may be subject to revocation of his access authorization, including authorization for access to the construction site and all other restricted and sterile areas.

The security status of the Airport is subject to change without notice. These Special Conditions are applicable to the current security status of the Airport. Should the security status of the Airport change at any time during the term of this Contract, a written notice shall be issued to the Contractor detailing all applicable security modifications from the airport's current security status. The Contractor shall take immediate steps to comply with those security modifications as directed in the written notice.

If these security modifications involve any additional project cost, the Contractor shall submit a Contractor Change Request in accordance with the General Conditions for the additional cost. The Contractor Change Request shall outline in specific detail the effects of the security modifications on the Contractor's performance of the Contract and shall provide a detailed cost breakdown for each item for which the Contractor is requesting reimbursement.

The Contractor shall return all access keys issued by the City to all areas of the Airport. If the Contractor fails to return any such key or keys at contract completion or termination, or upon demand by the City, the Contractor shall be liable to the City for related costs, including labor costs for employees, costs incurred in re-coring doors and any other work which is required to prevent compromise of Airport security. To collect such costs, the City may withhold funds in such amount from any amounts due and payable to the Contractor under this Contract.

If construction breaches any Airport perimeter security boundary or requires continued access to restricted access rooms or areas, the Contractor shall post authorized contract security personnel to maintain required security controls. The Contractor's Total Contract BID Amount shall include the cost of providing security services to maintain control and supervision of any and all airport perimeter security boundary breaches and for the duration of work activities until the airport perimeter security boundaries are reestablished.

THE IMPORTANCE OF THIS SPECIAL CONDITION CANNOT BE OVER-EMPHASIZED. SEVERE FINANCIAL PENALTIES INCLUDING CONTRACT TERMINATION COULD RESULT IF AIRPORT PERIMETER SECURITY REQUIREMENTS ARE NOT STRICTLY FOLLOWED. THE CONTRACTOR SHALL PROVIDE ONE HUNDRED PERCENT (100%) CONTROL AND SUPERVISION TO PREVENT UNSUPERVISED/UNSECURED BREACHES IN THE AIRPORT'S PERIMETER SECURITY. AT NO TIME, DURING WORK AND NON-WORK HOURS, SHALL BREACHES IN THE AIRPORT'S SECURITY PERIMETER BE UNSUPERVISED/UNSECURED.

For off-hours of construction, the Contractor may choose to erect a temporary wall to close all perimeter openings. The wall construction shall be of sufficient materials and strength to prevent access to the Airport's Sterile/Restricted Areas. The Contractor shall submit for review and approval, the details and materials for the temporary closure of security perimeter breaches.

The Contractor shall provide contract security guard services to maintain supervision of these

openings. The security services must provide coverage to allow for lunch breaks, comfort breaks and etc. The security services must be obtained from the following contract security guard company:

Covenant Aviation Security, LLC 1112 W. Boughton Road Suite 355 Bolingbrook, IL 60440 (720) 222-4774

All security guards provided for this project must have a DEN SIDA Badge.

The company providing contract security guard services at DEN may change at any time. The Contractor shall maintain a contractual relationship with whichever company is providing contract security guard services for the City at DEN.

The Contractor shall continue to provide security of these areas until such time that the breaches in the Airport's security perimeter have been permanently secured.

The Contractor shall submit a written security plan for approval to DEN's Director of Airport Security prior to the start of construction on any work where a breach of the perimeter security boundaries is required.

#### SC-11 CONSTRUCTION ACCESS

The work site is located at various drainages in the vicinity of Runway 17L-35R and Taxiway P (refer to Sheet C007). The Contractor shall have access to the work site via Gate P44T or P45T depending on the Contractor Staging Area assigned after contract award. The Contractor is responsible for ensuring that all of the Contractor's and subcontractors' personnel have the ability to access and locate the areas of work where the scope is to be performed without additional escorting or supervision from the City.

The City will not provide parking spaces for the Contractor's employees or subcontractor employees at the Airport. Arrangements for transportation and parking for all employees, including subcontractors, shall be the responsibility of the Contractor. The Total Bid Amount shall include any and all costs associated with the Contractor's and subcontractors' employee parking. Information about parking facilities and charges is available from the Airport Parking Office. Refundable deposits are required for all parking passes.

Unless specifically required by the Contract Documents, the Contractor shall install no fences or other physical obstructions on or around any project work area without the approval of the City.

#### SC-12 VEHICLE PERMITTING

Vehicle access on the Airport Operation Area ("AOA") is controlled by and operated by DEN Airport Operations and DEN Airport Security. Contractor is required to obtain a vehicle access permit for any vehicle entering inside this area. It is not anticipated that the Contractor will need to operate vehicles on the AOA to perform the Work. Only direct construction support vehicles and/or equipment will be allowed in the contractor's work areas or sites.

#### SC-13 REVISIONS TO GC 1102

GC 1102.2 is amended by replacing the phrase "Change Request" in all its occurrences in such GC with the phrase "Change Notice."

GC 1102.3 is amended by replacing the phrase "Field Order/Change Order Directive" in all its occurrences in such GC with the phrase "Change Directive."

#### SC-14 VENDORS AND SUPPLIERS

The Contractor shall provide the Project Manager's office with a list of its equipment/material vendors and suppliers. Vendors or suppliers shall access the construction work areas via the Contractor's access route specified in SC-10. All delivery vehicles are subject to search.

#### SC-15 COMMUNICATION DEVICES

Any site communications devices, mobile communication devices or internet data devices used at DEN must be approved by DEN Technologies prior to NTP.

#### SC-16 BONDS, SALES TAX AND INSURANCE

All costs associated with Contractor's bonds requirements, sales and use tax, and insurance requirements shall be reimbursed to the Contractor by the City at direct cost and without mark up. Under no circumstances shall the City reimburse or pay in any way any amount incurred by the Contractor for any such costs incurred by any subcontractors.

#### SC-17 PROJECT CONTROLS REQUIREMENT

The Contractor shall be required to use the designated Project Management Information System ("PMIS"), including but not limited to, Unifier, BIM 360 Field and Primavera P6 compatible to comply with the requirements of DEN's Project Controls System. The PMIS is DEC's tool for Project and information management, data analysis and document control. The City shall provide the licensing and training for PMIS to the Contractor. The Contractor shall be responsible for providing a compatible PC system that can support Primavera P6. The Contractor shall also be responsible for providing and maintaining the computer hardware, software and system environment capable of supporting Project Controls System requirements including at least: internet connection; Microsoft Windows 10 or better; Microsoft Office 2010; Oracle Java JRE 1.7.0 Update 5 and Adobe Acrobat X Pro. PMIS is the only project management system that will be accepted. All aforementioned systems are subject to change, at the City's sole discretion. The Contractor is required to follow all project controls technical specifications and process guidelines.

#### SC-18 PAYMENTS TO CONTRACTORS

To the fullest possible within the financial payment system, the City shall be entitled to all non-Confidential records, reports, data, and other information related to the Project that are available to Contractor through the financial payment system, including but not limited to, information related to Contractor and subcontractor billings. To that end, the Contractor shall activate any available settings within the financial payment system that are necessary to grant the City access to such non-Confidential information related to the Contract and the Project. Applications for payment shall be based on the Contract Unit Prices or the approved Schedule of Values described in GC 903.1.

In accordance with General Condition 902, PAYMENT PROCEDURE, the party(ies) responsible for the review of all Pay Applications shall be:

#### Agency/Firm

DEN DEC CA DEN DEC PM DEN DEC Supervisor DEN DEC Director DEN Procurement CA CCD Denver Prevailing Wage DEN DSBO

#### SC-19 ADDITION TO GC 906

In accordance with General Contract Condition 906, APPLICATIONS FOR PAYMENT, each Application submitted shall include the following:

- 1. Each Application for Payment shall include contractor's payroll information, including payment dates and payment amounts.
- 2. Each Application for Payment shall include each and every independent subcontractor's payroll information including pay dates and pay amounts.
- 3. The Contractor shall also submit to the Auditor and other appropriate officials of the City in a timely fashion, information required by General Contract Condition 1004, REPORTING WAGES PAID.

#### SC-20 PAYMENTS TO SUBCONTRACTOR AND SUBCONTRACTOR RELEASES – REQUIRED USE OF THE B2G MANAGEMENT SYSTEM

The Contractor is required to use the City B2G Contract Management System to report all subcontractor payments and shall adhere to the City's Procedure for Reporting Subcontractor Payments. It is the Contractor's obligation to ensure that complete subcontractor information is entered into the B2G System prior to submission of the first Application for Payment in order to avoid any delays in payment. The Contractor shall, prior to the submission of each subsequent invoice, ensure payments to subcontractors have been entered into the B2G System, including subcontractor confirmation of the amount of payment received, for services performed during the prior billing period.

#### SC-21 ESTIMATED QUANTITIES OF UNIT PRICED ITEMS

The "total estimated quantity" of each unit price item as stated on the Bid schedules shall be the estimated quantity which is used to determine the percentage of change in such item for purposes of G.C. 1104.7.

#### SC-22 LISTING OF ACCEPTABLE MANUFACTURERS

The Technical Specifications list "Acceptable Manufacturers" for certain products. Such listing identifies manufacturers of certain products which have been determined by a preliminary review to be able to meet the basic product and/or system technical requirements. The listing is not intended to provide a blanket endorsement or acceptance of the manufacturer's specified products or product line. All products from listed manufacturers must meet the detailed requirements of the Technical Specifications. Products that do not meet all detailed Technical Specifications are not acceptable and will be rejected, regardless of whether the manufacturer was listed as "acceptable." The Contractor is responsible for determining the acceptability of all products under the Technical Specifications prior to submission of products for approval.

#### SC-23 CONTRACTOR SUPERINTENDENT

General Contract Condition 307 is hereby deleted in its entirety and replaced with the following:

The Contractor shall employ and designate to the Project Manager in writing a competent Construction Project Manager, Construction Manager (Project Superintendent), Quality Manager, Traffic Control Manager, and Environmental Manager. The qualifications of these staff must be acceptable to the City. The Project Superintendent shall serve on a full-time basis at the Work site and shall be authorized to act on behalf of the Contractor in all matters related to the Work. The same individuals shall continue in their defined roles until the Work has been completed, unless the City requests or approves replacement, or they cease to be employed by the Contractor, in which case Contractor shall notify the City within one (1) calendar day of the replacement and request the City's approval of the replacement. The Project Superintendent, or their approved designated representative must be onsite at all times when on-site Work is performed.

#### SC-24 SUBSTANTIAL COMPLETION

General Contract Condition 119 is hereby deleted in its entirety and replace with the following:

"Substantial Completion" of the Work means the Work has progressed to the point that the City can beneficially occupy and utilize the Work for the purposes for which it is intended, and the Work complies with all applicable codes and regulations, including, if required, issuance of a certificate of occupancy, or certification of suitability for use from the appropriate governmental agencies, as determined by the Project Manager in their sole discretion. Substantial Completion includes, without limitation, the achievement of the following specific conditions: (1) the full and operational status of all drainage elements, (2) all roadways and accesses are complete and open to traffic, (3) all permanent striping, signals and lighting are complete and operational and traffic is in its final configuration, (4) all landscaping is installed with native natural area landscaping seeded with the appropriate Best Management Practices (BMPs) installed, and (5) all Work is in compliance with all applicable laws and the Contract Documents. The achievement of Substantial Completion shall be determined by the Project Manager in their sole discretion. The Project Manager will advise the Contractor in writing when Substantial Completion of the Work has been achieved.

#### SC-25 ATTORNEYS' FEES

Colorado Revised Statutes § 38-26-107 requires that, in the event any person or company files a verified statement of amounts due and unpaid in connection with a claim for labor and materials supplied on this project, the City shall withhold from payments to the Contractor sufficient funds to insure the payment of any such claims. Should the City be made a party to any lawsuit to enforce such unpaid claims or any lawsuit arising out of or relating to such withheld funds, Contractor agrees to pay to the City its costs and a reasonable attorney's fee incurred in any such lawsuit.

Because the City Attorney Staff does not bill the City for legal services on an hourly basis, Contractor agrees a reasonable fee shall be computed at the rate of two hundred dollars (\$200) per hour of City Attorney time.

#### SC-26 INSURANCE REQUIREMENTS

In accordance with the provisions of Title 16 of the General Conditions, the minimum insurance requirements for this Contract are set forth in Section 10 of the Contract. The Contractor specifically agrees to comply with each condition, requirement or specification set forth in the attachment for each required coverage during all periods when the required coverages are in effect.

Contractor and subcontractors shall procure and maintain until all of their obligations have been discharged, including any warranty periods under this Contract are satisfied, required insurance against claims for injury to persons or damage to property which may arise from or in connection with the performance of the work hereunder by the Contractor, its agents, representatives, employees, or sub-contractors.

The insurance requirements herein are minimum requirements for this Contract and in no way limit the indemnity covenants contained in this Contract.

The City in no way warrants that the minimum limits contained herein are sufficient to protect the Contractor from liabilities that might arise out of the performance of the work under this Contract by the Contractor, its agents, representatives, employees, or sub-contractors. The Contractor shall assess its own risks as it deems appropriate and/or prudent, maintain higher limits and/or broader coverages. The Contractor is not relieved of any liability or other obligations assumed or pursuant to the Contract by reason of its failure to obtain or maintain insurance in sufficient amounts, duration, or types.

Contractor shall furnish the City with certificates of insurance (ACORD form or equivalent approved by the City) as required by this Contract. The certificates for each insurance policy are to be signed by a person authorized by the insurer to bind coverage on its behalf.

All certificates and any required endorsements are to be received and approved by the City before work commences. Each insurance policy required by this Contract must be in effect at or prior to commencement of work under this Contract and remain in effect for the duration of the project. Failure to maintain the insurance policies as required by this Contract or to provide evidence of renewal is a material breach of the Contract. All insurance coverages for subcontractors shall be subject to the minimum requirements identified in Section 10 of the Contract. All subcontractors' certificates and endorsements shall be received and approved by the Contractor before work commences. The City reserves the right to request copies of these certificates at any time.

All certificates required by this Contract shall be sent directly to ContractAdminInvoices@flydenver.com. The City project/contract number and project description shall be noted on the certificate of insurance. The City reserves the right to require complete, certified copies of all insurance policies required by this Contract at any time.

The parties hereto understand and agree that the City, its elected and appointed officials, employees, agents, and volunteers are relying on, and do not waive or intend to waive by any provisions of this Contract, the monetary limitations or any other rights, immunities and protections provided by the Colorado Governmental Immunity Act, C.R.S. §§ 24-10-101 et.seqi, or otherwise available to the City, its elected and appointed officials, employees, agents, and volunteers.

#### SC-27 ADDITIONAL AFFIRMATIVE ACTION REQUIREMENTS, FEDERAL PROVISIONS

The Contract is subject and subordinate to the terms, reservations, restrictions, and conditions of any existing or future agreements between the City and the United States, the execution of which has been or may be required as a condition precedent to the transfer of federal rights or property to the City for airport purposes, and the expenditure of federal funds for the extension, expansion or development of the Airport System. The Contractor shall comply with Section 29 and Exhibit A of the Contract.

END OF SPECIAL CONDITIONS