

REQUEST FOR PROPOSAL

**ON-CALL CONSTRUCTION  
SERVICES 2012-13 Terminal Roadway &  
Garage Repairs**

CONTRACT NO: 201102006

**JOHN ROHRER CONTRACTING  
COMPANY, INC.**

DEPARTMENT OF AVIATION  
City & County of Denver  
Kim Day, Manager



**DENVER INTERNATIONAL AIRPORT**

PLANNING & DEVELOPMENT DIVISION



**DENVER INTERNATIONAL AIRPORT**  
**ON-CALL CONSTRUCTION SERVICES 2012-13 TERMINAL ROADWAY  
& GARAGE REPAIRS**  
**CONTRACT NO. 201102006**

**ADDENDUM NUMBER ONE**

September 14, 2011

This Addendum Number One supersedes and/or supplements all portions of the Contract Documents with which it conflicts. Proposers must acknowledge receipt of this addendum on page B-1 of the Proposal Forms.



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David I. Rhodes  
Deputy Manager of Aviation  
Planning & Development



DENVER INTERNATIONAL AIRPORT

ON-CALL CONSTRUCTION SERVICES 2012-13 TERMINAL ROADWAY  
& GARAGE REPAIRS

CONTRACT NO. 201102006

**ADDENDUM NUMBER ONE**

Scope of this Addendum

**PART ONE, VOL. 1 CONTRACT DOCUMENTS**

**PROPOSAL FORMS. (4A) SCHEDULE OF PRICES AND QUANTITIES FOR TASK 1 AND  
TECHNICAL SPECIFICATIONS**

1. Refer to Proposal page B-16 and Technical Specification 020010-Work Items. Work Item (WI) 1.50 Temporary Signage shall be changed from a Bid Item to an allowance work item. The Proposer shall use a total cost for WI 1.50 – Temporary Signage of \$25,000.00 for this work item. After selection and issuance of the Contract the cost for this work item shall determined in accordance with the General Contract Condition Article 11 – Changes to the Work, Contract Price or Time.
2. Refer to Proposal page B-16 and Technical Specification 020010-Work Items. Work Item (WI) 1.80 Traffic Control shall be changed from a Bid item to an allowance work item. The Proposer shall use a total cost for WI 1.80 – Traffic Control of \$260,000.00 for this work item. After selection and issuance of the Contract the cost for this work item shall determined in accordance with the General Contract Condition Article 11 – Changes to the Work, Contract Price or Time.

The total number of pages (including cover sheet) contained in this Addendum Number One is two (2) plus zero (0) attachments.

\* \* \* \* \*

*End of Addendum Number ONE*



# CITY AND COUNTY OF DENVER

DEPARTMENT OF AVIATION  
DENVER INTERNATIONAL AIRPORT

## On-Call Construction Services 2012-13

### Terminal Roadway & Garage Repairs

Contract No. 201102006

## NOTICE OF INVITATION FOR PROPOSALS

Denver, Colorado

August 31, 2011

Sealed proposals for Contract No. 201102006, ON-CALL CONSTRUCTION SERVICES 2012-13 Terminal Roadway & Garage Repairs will be received no later than **2:00 P.M., Local Time, September 29, 2011** and delivered to Nathan Jones, Room 8810, Airport Office Building (AOB), Denver International Airport, 8500 Peña Blvd., Denver, CO 80249-6340.

Prior to submitting a proposal, the proposer shall consult the Contractor's bulletin board located at Denver International Airport, 8500 Peña Boulevard, Denver, Colorado 80249, on wall south of the entrance to the Airport Office Building (AOB) on the bridge to Concourse A. The AOB entrance and the Contractor's bulletin board are located west of, and outside, the Concourse A security screening area.

### GENERAL STATEMENT OF WORK

The project consists of an ON-CALL CONSTRUCTION SERVICES contract for 2012-13 Terminal Roadway and Garage Repairs at Denver International Airport. Projects will be incorporated into the contract through task orders. Performance time will be established per task for within a two (2) year period, or until the maximum authorized contract amount is reached, whichever occurs first.

### ESTIMATED COST

Cost of work for this contract is estimated to be between \$1 and \$12,000,000.00. The maximum task order amount for this contract will be dependent on the amount authorized by the Manager of Aviation or designated representative.

### DOCUMENTS AVAILABLE

Request for Proposal (RFP) documents will be available on the DIA Contract Procurement website at <http://business.flydenver.com/bizops/rfp.asp> beginning **September 1, 2011**.

### PREQUALIFICATION

Each proposer must be pre-qualified in the category of 7(g) Buildings: Structural Rehabilitation General at the \$5,000,000.00 level, in accordance with the City's Rules and Regulations Governing Prequalification of Contractors. Each proposer must have submitted a prequalification application a minimum of ten (10) calendar days prior to the bid opening date. Applications must be submitted to the Department of Public Works, Prequalification Section, 201 West Colfax Avenue, Department 506, Denver, Colorado 80202. To view the Rules and Regulations and to obtain a prequalification application, please visit our website at [www.denvergov.org/prequalification](http://www.denvergov.org/prequalification) or call 720-865-2539 for prequalification information ONLY.

### PRE-PROPOSAL CONFERENCE AND INSPECTION

All proposers are REQUIRED to attend a MANDATORY pre-proposal conference at 10:00 AM, THURSDAY, SEPTEMBER 8, 2011, in the triple wide trailer, located within the DIA South Campus at 27301 E. 71<sup>st</sup> Avenue, Unit #2, Denver, CO 80249. A site visit will be conducted immediately following the Pre-Bid Conference. A portion of the site visit requires access to a secure portion of the Terminal. The following information must be sent to DIA via email 72 hours prior to the Pre-proposal meeting for each individual requesting access to the secure area: Last Name; First Name (no nicknames); date of birth; driver's license # or passport #; state/country; company or organization name; contact phone number. Email this information to Bill Shirk at [bill.shirk@flydenver.com](mailto:bill.shirk@flydenver.com).

### **MINORITY/WOMEN BUSINESS ENTERPRISE PARTICIPATION**

Construction, reconstruction and remodeling contracts made and entered into by the City and County of Denver are subject to Article III, Divisions 1 and 3 of Chapter 28 of the Denver Revised Municipal Code, (D.R.M.C.) and all Minority/Women Business Enterprise Utilization and Equal Employment Opportunity Rules and Regulations adopted by the Director of the Division of Small Business Opportunity (DSBO).

Article III, Divisions 1 and 3 of Chapter 28 of the D.R.M.C. directs the Director of the DSBO to establish a project goal for expenditures on construction, reconstruction and remodeling work contracted by the City and County of Denver. **The specific goal for this project is 18% MBE/WBE participation.**

Project goals must be met with certified participants as set forth in Section 28-60, D.R.M.C. or through the demonstration of sufficient good faith efforts under Section 28-62, D.R.M.C. For compliance with good faith effort requirements under Section 28-62(b)(3), the MBE/WBE percentage solicitation level required for this project is 100%.

The Director of DSBO urges all participants in City construction, reconstruction and remodeling projects to assist in achieving these goals.

### **NON DISCRIMINATION IN THE AWARD OF CITY CONTRACTS**

It is the policy of the City and County of Denver to prohibit discrimination in the award of construction contracts and subcontracts for public improvements. Further, the City and County of Denver encourages contractors to utilize minority and women owned businesses and to divide the construction work into economically feasible units or segments to allow the most opportunity for subcontracting.

### **MISCELLANEOUS**

As its best interests may appear, the City and County of Denver reserves the right to reject any or all proposals and to waive informalities in proposals.

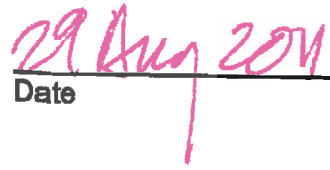
The work under the Contract is subject to minimum wage rates established by the City and County of Denver Career Service Board.

All contracts made and entered into by the City and County of Denver are subject to Affirmative Action and Equal Employment Opportunity Rules and Regulations as may be adopted by the City and County of Denver.

Published in the Daily Journal  
August 31, September 1 & 2, 2011

DO NOT PUBLISH BELOW THIS LINE

  
\_\_\_\_\_  
Manager of Aviation

  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Deputy Manager of Aviation for Planning & Development

  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Director, Division of Small Business Opportunities

  
\_\_\_\_\_  
Date

**CITY AND COUNTY OF DENVER**  
DEPARTMENT OF AVIATION  
DENVER INTERNATIONAL AIRPORT  
**On-Call Construction Services 2012-13 Terminal Roadway & Garage  
Repairs**  
Contract No. 201102006

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Separately Published\*: General Contract Conditions

\*City and County of Denver; Department of Aviation and  
Department of Public Works, Standard Specifications for  
Construction, General Contract Conditions, 1999 Edition

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**VOLUME:** TECHNICAL SPECS & DRAWINGS FOR TASK 1

**CITY AND COUNTY OF DENVER**  
DEPARTMENT OF AVIATION  
DENVER INTERNATIONAL AIRPORT  
**On-Call Construction Services 2012-13 Terminal Roadway & Garage  
Repairs**  
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## INSTRUCTIONS TO PROPOSERS

### IB-1 INSTRUCTIONS TO PROPOSERS

These Instructions to Proposers are a part of the Contract Documents and are intended to serve as a guide to Proposers. They are general in nature and may be amended or supplemented as needed to support any one specific invitation to Proposal. Each Proposer shall prepare its Proposal in strict compliance with all requirements of the Contract Documents and by careful application of these instructions.

### IB-2 SUBMISSION OF PROPOSALS

The bound copy of these Contract Documents contains Proposal Forms and Proposal Data Forms. The Proposer must complete these Proposal Forms and Proposal Data Forms and submit them as its Proposal.

Each Proposal must be enclosed in a sealed envelope, addressed to the Manager of Aviation, showing on the face of the envelope the name of the Proposer, the project number, and descriptive title of the work for which the offer is made. The Notice of Invitation for Proposals identifies where and when the Proposal must be delivered.

Addenda to the contract documents will be issued by publication in their entirety on the DIA Contract Procurement Website, <http://business.flydenver.com/bizops/rfp.asp>, from which each addendum document may be downloaded by planholders. Such addenda may include replacements for or additions to some or all of the pages of the Proposal Forms, and all Proposal Form pages added by addendum shall be submitted with the Proposal Forms. Either a complete addendum or a notice of its issuance will be posted on the Contractor's Bulletin Board. Prior to submitting proposals, Proposers shall read the Contractor's Bulletin Board and/or DIA Contract Procurement website to confirm that they have received all addenda.

If Sensitive Security Information ("SSI") will be provided to potential proposers prior to award of the Contract, each proposer shall be required to comply with Department of Aviation, Standard Policies and Procedures No. 6003, "Contractor Protection of Sensitive Security Information," or its successor. A copy of this Policies and Procedures document will be provided with the Proposal Documents, or upon request by the Department of Aviation, Business Management Services Office.

Each proposer shall submit one (1) original and one (1) copy of the following, completed and executed in accordance with the Contract Documents:

- (1) The separately bound Proposal Forms booklet;
- (2) All Proposal Form pages not bound in such booklet which are included in any addendum to the Contract Documents;
- (3) The Proposer's Proposal Bond or Proposal Guarantee in conformance with IB-11; and

- (4) The Proposer/Contractor Disclosure Form described in IB-24 and included with the Proposal Forms, unless the Proposer has a current disclosure form on file with the City Clerk.

### **IB-3 COMPLETING AND SIGNING PROPOSAL FORMS**

The Proposer must complete the Proposal Forms by legibly writing or printing in ink, words or figures, or both if required, all the Proposer's offered prices for performing the work. All blank spaces which require a response of the Proposer must be properly filled in. In filling out the Proposal Forms, the Proposer should avoid making changes to the extent possible, but, if changes are necessary, any interlineation, white outs, or erasures should be initialed.

For any contracts containing unit prices, the Proposer shall specify in the Proposal 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 Proposer must sign the Proposal Forms and give the Proposer's current business address. If an individual, the signature must be of the individual offering the Proposal; 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 Proposal contains evidence satisfactory to the Manager to prove that the other persons are authorized to bind the Proposer.

### **IB-4 UNACCEPTABLE PROPOSALS**

The City will not accept Proposals from Proposers 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 Manager of Aviation. A history or pattern of litigation against the City and County of Denver by any Proposer, proposed subcontractor, interested party, or any person, firm, or corporation affiliated with any Proposer, among other items, will be considered by the Manager in determining the responsibility and reliability of Proposers. Proposers may be required to submit satisfactory evidence that they have a practical knowledge of the particular work proposed upon and that they have the necessary financial resources to complete the proposed work.

### **IB-5 ONLY ONE PROPOSAL ACCEPTED**

The City will accept only one Proposal for the same work (Contract) from any one Proposer. This includes Proposals that may be submitted under different names by one firm or corporation. Evidence of collusion among Proposers shall be grounds for exclusion of any Proposer who is a participant in any such collusion.

**Proposers are allowed to submit a revised proposal for consideration on other On-Call Construction Contracts, but only one Proposal per each contract is**

**allowed. Proposal submittal must identify the specific contract which the Proposer is requesting consideration.**

#### **IB-6 CONSIDERATION OF PROPOSALS**

After the Proposals are opened and read and any discrepancies have been reviewed, Proposals will be compared based on the evaluation factors stated herein.

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 Proposal discrepancies which the City corrects in accordance with the general rules described above shall be corrected with the understanding that the Selected Proposer waives any claims against the City because of the Proposer's mistakes in its Proposal.

**The City reserves the right to waive informalities, to reject any and all Proposals, and to advertise for new Proposals where it is in the best interest of the City.**

#### **IB-7 INFORMAL AND UNBALANCED PROPOSALS**

Proposals shall be considered informal and may be rejected for the following reasons:

- (a) If the Proposal is on a form other than the Proposal Forms furnished by the City, or if the form is altered or any part thereof is detached.
- (b) If there are unauthorized additions, conditional or alternate Proposals, or irregularities of any kind which may tend to make the Proposal incomplete, indefinite, or ambiguous.
- (c) If the Proposer fails to acknowledge in the Proposal receipt of any or all addenda current on the date of opening of Proposals.
- (d) If the Proposal does not contain a unit price or lump sum amount for each item listed except in the case of authorized alternative items.
- (e) If there is an interlineation, white out, or erasure in the Proposal Forms.
- (f) If the Proposal 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.

#### **IB-8 EVALUATION FACTORS FOR AWARD**

Those proposals which have been properly submitted will be evaluated to determine a competitive range. The proposals will be evaluated and scored on the following factors. The requirements in the Invitation for Proposals are considered to be minimum requirements. More points may be awarded for exceeding the minimum



requirements. The point-scored factors listed below are in descending order of importance:

**(1) Experience/Past Performance 400 points**

Proposals that demonstrate in-depth and long-term experience in the specialized work of this contract will receive more points than those with only occasional experience in this work. The proposer's experience with meeting projected schedules, with managing costs, with solving problems, with making repairs during the warranty period and with the ability to satisfy previous customers will contribute to the final score. Points will also be awarded for up to three projects submitted as experience which were performed for federal, state or local governmental agencies, private companies or organizations which the proposer believes will demonstrate its ability to perform under the terms and conditions of this contract. Accuracy of information provided and conformance to the proposal requirements may also affect the final score.

**(2) Key Personnel Requirements 100 points**

The three key contractor personnel listed below will be evaluated based on the individual's construction experience and/or education. Length of experience, diversity of relevant experience, specific in-depth experience with the wide range of products and techniques used in the specialized work of this contract, a range of experience with site utilities, building lighting, hvac, plumbing and fire alarm systems will be some of the criteria used for evaluation of the personnel. Experience in government, industrial or related construction contract work is considered more valuable than other types of experience. The accuracy of the information provided and conformance to the requirements of this request for proposals may also affect the final score. The three key positions are as follows:

- Contractor's Project Manager
- Project Superintendent
- Project Engineer

**(3) Quality Control Plans 200 points**

The evaluation will consider whether or not each specified item of concern is addressed. Since the implementation of the quality management/control plans is a contract requirement, the evaluation will consider effectiveness of the plan. Unnecessarily elaborate and perceived inefficient and/or ineffective plans will receive lower scores in the evaluation. Conformance to the proposal requirements may also affect the final score. The Quality Control Plan must address the following:

- a. Describe how you will assure that only high quality work is provided.
- b. Describe what you will do to establish positive attitudes, cooperation and good working relationship between your firm, subcontractors and the City.

- c. Demonstrate that you have the ability and will respond quickly when there is a construction related issue identified by DIA that is negatively affecting DIA operations.
- d. Submit a Quality Control Management Plan on the form included in the Proposal Forms.

**(4) Schedule of Prices and Quantities**

**400 points**

The Contract documents including the design drawings and specifications are included with this RFP and will be Task 1 for this project. The Proposer shall provide a complete response to all of the unit price work items presented. The lowest prices proposed will be awarded the maximum number of points assigned. Generally, points for other proposers will be awarded proportionately in comparison to the lowest price proposal. The unit prices provided will be reviewed to insure that a balanced proposal is provided.

**IB-9 NOTICE TO SELECTED PROPOSER - EXECUTION OF CONTRACT**

The Selected Proposer will be given written notice of such status on the form included in the Proposal Documents within sixty (60) days from the date of opening of Proposals.

The Selected Proposer shall execute the contract and return it to the City along with the required bonds and insurance forms within ten (10) consecutive calendar days from and including the date of the Notice to Selected Proposer. When the executed contract and the required bonds and insurance certificates are received, approval for the City to contract with the Selected Proposer shall be sought in accordance with the Charter of the City and County of Denver. Such notice shall not create any rights in the Selected Proposer to any contract with the City.

**IB-10 QUANTITIES**

Payment to the Contractor will be based on the actual quantities of work performed, measured, and accepted or materials furnished in accordance with the Contract Documents.

**IB-11 PROPOSAL GUARANTEE; BONDS; INSURANCE**

As a guarantee of good faith on the part of the Proposer, each Proposal must be accompanied by a Proposal guarantee consisting of either a certified or cashier's check made payable without condition to the order of the City and County of Denver or a Proposal bond written by an approved corporation surety in favor of the City and County of Denver. If the Proposal of a Proposer is acceptable and the Proposer is notified by the Manager of Aviation that it is considered to be the Selected Proposer and said Proposer fails to (1) execute a contract in the form prescribed, (2) furnish the payment and 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 Proposal guarantee shall be forfeited to the City as liquidated damages and not as a penalty. The Proposal guarantee shall be in the amount of Fifty Thousand Dollars (\$50,000.00) for each Proposal submitted for consideration. A Proposal Bond form for execution by the Proposer is supplied with each set of contract documents. IF A PROPOSAL BOND IS USED, IT MUST BE THE FORM OF PROPOSAL BOND SUPPLIED WITH THE CONTRACT DOCUMENTS.

#### **IB-12 RETURN OF PROPOSAL GUARANTEE**

As soon as Proposals have been evaluated, Proposal guarantees of all except the three highest scoring proposers will be returned. When the Selected Proposer executes the contract and delivers to the City satisfactory performance and payment bonds and required insurance documentation, and any other conditions precedent to contract execution by the City have been satisfied, including, where applicable, City Council contract approval, the Proposal guarantees of the three highest scoring proposers shall be returned to them.

#### **IB-13 CONTRACTOR'S BULLETIN BOARD**

It shall be conclusively presumed that the Proposer did, before submitting a Proposal, read all addenda, posted decisions, and other information items relevant to the Proposal which appeared on the Contractor's Bulletin Board.

The Contractor's Bulletin Board is located at Denver International Airport, 8500 Peña Blvd., Denver, CO 80249-6340, on the wall south of the entrance to the Airport Office Building (AOB). The AOB entrance is reached by way of the corridor leading to Concourse A from the North end of the Terminal on Level 6, and is located west of the Concourse A security screening area. The AOB entrance and the Contractor's Bulletin Board are both located outside the security screening area.

#### **IB-14 INTERPRETATION OF PROPOSAL DOCUMENTS**

During the Proposal period, Proposers shall request, in writing, clarification or interpretation of any apparent errors or omissions in the contract documents, any apparent inconsistencies between different provisions of the contract documents, or any other point in the contract documents which the Proposer believes requires clarification or interpretation by the City. Any such request must be submitted in writing by email to [contract.procurement@flydenver.com](mailto:contract.procurement@flydenver.com), must have the words "Request for Clarification" and "Contract No. 201102006" in the email subject line, and must be received not later than ten (10) calendar days before the date and time set for receipt of Proposals. For purposes of the contract, it shall be conclusively presumed that prior to proposing, the Proposer requested clarification or interpretation of any apparent errors, inconsistencies, or other point in the contract documents believed to require clarification or interpretation, and has waived the right to later claim extra payment or time extensions on account of any such error.

Information about any interpretation or clarification made by the City in response to such request will be posted on the DIA Contract Procurement website, [www.flydenver.com/contracts](http://www.flydenver.com/contracts). It shall be the Proposer's responsibility to ensure it has

reviewed all such interpretations or clarifications. After Proposals are opened, all Proposers must abide by the decision of the Manager of Aviation or his authorized representative as to the interpretation or clarification. If the Manager of Aviation or his authorized representative determines that his decision or interpretation requires that an addendum to the Proposal documents be issued, such addendum will be posted on the DIA Contract Procurement website and either the complete addendum or a notice of its issuance will be posted on the Contractor's Bulletin Board. It shall be the Proposer's responsibility to ensure it has received all such addenda, and each Proposer must acknowledge receipt of all addenda on the Proposal Forms when it submits its Proposal.

The City shall not be bound by and the Proposer shall not rely on any oral interpretation or clarification of the Proposal Documents.

#### **IB-15 WITHDRAWAL OF PROPOSAL**

A Proposer may withdraw its Proposal (s) within two (2) weeks following the time of submittal as set forth in the Notice of Invitation for Proposals by making written request to the Manager of Aviation. After the expiration of the withdrawal period, no Proposal can be withdrawn for one hundred twenty (120) calendar days after the date Proposals are opened or until after a contract for the work described in these Proposal Documents is fully executed by the City, whichever date is earlier.

Such a request must be signed by persons authorized to bind the Proposer as defined in IB-3, "Completing and Signing Proposal Forms."

#### **IB-16 SUBCONTRACTOR LISTS IN PROPOSAL**

The Proposer shall, on the forms included in the Proposal Forms, identify each element of the work which the Proposer plans to subcontract and include the name and address of the proposed subcontractor.

#### **IB-17 TAXES**

1. General. Proposers are referred to the General Conditions, G.C. 322, as to taxes to which they 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. Sales and Use Tax. Construction and building materials sold to contractors and subcontractors for use on structures, roads, streets, highways, and other public works owned by the City and County of Denver at Denver International Airport are exempt from state, RTD, and Cultural Facilities District sales and use taxes. However, such materials will be subject to sales and use taxes imposed by the City and County of Denver.
3. Exemption Certificates – Sales and Use Tax. It is responsibility of the Contractor and its subcontractors 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. Proposers shall not include in their Proposal amounts the exempt State, RTD, and Cultural Facilities District Sales and Use Taxes.

4. Denver Occupational Privilege Tax. Any employee working for a contractor or a subcontractor who earns over \$500 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.

#### **IB-18 NONDISCRIMINATION IN THE AWARD OF CITY CONTRACTS**

It is the policy of the City and County of Denver to prohibit discrimination in the award of construction contracts and subcontracts for public improvements. Further, the City and County of Denver encourages contractors to utilize minority and women owned businesses and to divide the construction work into economically feasible units or segments to allow the most opportunity for subcontracting.

#### **IB-19 MINORITY/WOMEN BUSINESS ENTERPRISE (MBE/WBE) REQUIREMENTS**

Divisions 1 and 3, Article III of Chapter 28 of the Denver Revised Municipal Code (Sections 28-31 to 28-36 and 28-52 to 28-90, D.R.M.C.) (the "Ordinance") apply to this Project and are incorporated into this Contract by reference. Generally, the Ordinance provides for the adoption of a good faith goals program, to be administered by the Division of Small Business Opportunity (DSBO), devised to provide increased bidding opportunities for Minority/Women Business Enterprises (MBE/WBEs). As such, each bidder must comply with the terms and conditions of the Ordinance in making its bid and, if awarded the Contract, in performing all Work thereunder. A bidder's failure to comply with the Ordinance, any Rules or Regulations promulgated pursuant thereto, or any additional requirement contained herein shall render the bid non-responsive and shall constitute cause for rejection. Failure by the contractor awarded the contract to comply with Ordinance requirements during the performance of the contract is a material breach of the contract, which may result in the termination of this contract, the imposition of sanctions or such other remedy, as deemed appropriate by DSBO. Copies of the Ordinance and its accompanying Rules and Regulations are available for the use and review of bidders from DSBO.

In order to comply with the bid requirements of the Ordinance, a bidder shall either meet the established project goal or, in the alternative, demonstrate that the bidder has made sufficient good faith efforts to meet the goal in accordance with the Ordinance. In preparing a bid to meet the established Project goal, bidders should consider the following instructions relating to compliance with the Ordinance:

1. Under the Ordinance, the Director of DSBO ("Director") is directed to establish project goals for expenditures on construction, reconstruction and remodeling work performed for the City and County of Denver. The specific goal for this project is stated in the Notice of Invitation for Bids bound herein.
2. In preparing its bid, each bidder shall list on the Bid Form pages entitled "List of Proposed Minority/Women Business Enterprise Bidders, Subcontractors,

Suppliers, Manufacturers, Manufacturers' Representatives or Brokers" the name, address, work description/supply, committed level of participation and other required information for each MBE/WBE of any tier which the bidder intends to use in performing the work on this Project. **Only the MBE/WBEs identified and the precise levels of participation listed for each on the Bid Form page, at the time of bid opening, will be considered in determining whether the bidder has met the designated participation goal. Additional, revised or corrected participation submitted after bid opening will not be considered. MBE/WBE bidders may count self-performance or joint venture activity in meeting the MBE/WBE project goal, but only for the scope of work performed as a commercially useful function and at a percentage level the MBE/WBE will be performing itself.**

3. All MBE/WBEs listed on the Bid Form must be properly certified by the City on or before the date bids are opened in order to count towards meeting the designated goal. DSBO maintains an MBE/WBE Construction Directory ("Directory"), which is a current listing of MBE/WBEs that have been certified by the City. A copy of the Directory is available from DSBO, located at 201 W. Colfax, Dept. 907, Denver, Colorado, or on the website located at [www.denvergov.org/DSBO](http://www.denvergov.org/DSBO) and will also be made available at the pre-bid meeting. Bidders are encouraged to use the Directory to assist in locating MBE/WBEs for the work and supplies required on the Project. Bidders are reminded that changes may be made to the Directory at any time in accordance with the City's MBE/WBE Ordinance and procedures established to administer this program, and that a current copy of the Directory must always be used in preparing a bid. MBE/WBE certification or listing in the Directory is not a representation or warranty by the City as to the qualifications of any listed MBE/WBE.
4. In accordance with the provisions of the Ordinance, DSBO will evaluate each bid to determine the responsiveness of the bid to the requirements of the Ordinance. In determining whether a bidder's committed level of participation meets or exceeds the stated MBE/WBE goal, DSBO shall base its calculation of applicable amounts and percentages on the total base bid amount, not including any listed alternates, of each bid as follows:
  - a. The bid information provided by the agency will be used to determine the total base bid amount of each bid. Each bidder's total base bid amount will be multiplied by the MBE/WBE percentage established for the project to determine the exact dollar amount of required MBE/WBE participation for the Project. This amount will then be compared against the exact dollar amounts for the MBE/WBEs committed for participation by the bidder. If the total dollar amount of participation listed meets or exceeds the established MBE/WBE dollar amount goal listed, then DSBO will determine that the goal has been met.
  - b. In addition, DSBO will determine the exact commitment percentage for each listed MBE/WBE by dividing the dollar amount listed for each MBE/WBE by the total base bid dollar amount submitted by the

bidder. These individual percentages, when totaled for all listed MBE/WBEs, will establish the total committed percentage level of MBE/WBE participation that the bidder must comply with during the life of the contract. In all cases, the committed percentage level of MBE/WBE participation must equal or exceed the assigned MBE/WBE goal for the Project.

- c. In providing the exact dollar amount of participation for each listed MBE/WBE, a bidder should take care never to round up in determining whether or not the total of these amounts meets or exceeds the established percentage goal. The goal must be met or exceeded by dollar amounts and percentages in order for DSBO to determine that the bidder has met or exceeded the applicable MBE/WBE goal.
- d. As previously mentioned, compliance with the MBE/WBE goal will be determined on the base bid alone. If a bid contains alternates, participation contained in any alternate will not count towards satisfaction of the Project goal. However, should any designated alternate be selected by the City for inclusion in the contract ultimately awarded, the MBE/WBE goal percentage level submitted at bid time, on the base bid, will also apply to the selected alternates and must be maintained for the life of the contract on the total contract amount, including any alternate work. Thus, even though such participation will not be considered in evaluating bids, bidders are urged to consider participation in preparing bids for designated alternates.
- e. On projects where force account or allowance bid items have been included, bidders must meet the MBE/WBE goal percentage based upon the total base bid, including all such items that are submitted to the City. However, when a force account or allowance is designated by the City to be either performed or purchased from a specific company, the bidder may back out the dollar amount of the force account or allowance from the total base bid and meet the MBE/WBE goal on the remaining reduced amount.
- f. On bids which, at the time of bid opening, are equal to or exceed Five Million Dollars (\$5,000,000.00), including any alternates which may be selected, only sixty percent (60%) of the value of the commercially useful function performed by MBE/WBE suppliers shall count toward satisfaction of the Project goal. On Projects under Five Million Dollars (\$5,000,000.00) the value of the commercially useful function of MBE/WBE supplier(s) will count at a one hundred percent (100%) level. Manufacturers' representatives and packagers shall be counted in the same manner as brokers.
- g. **In utilizing the MBE/WBE participation of a Broker**, only the bona fide commissions earned by such Broker for its performance of a commercially useful function will count toward meeting the Project goals. The bidder must separate the 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 goal.

5. On or before the third (3<sup>rd</sup>) working day after bid opening, all of the Bidders are required to submit an executed "MBE/WBE Letter of Intent" for each MBE/WBE listed on the Bid Form as a joint venture member, subcontractor, supplier, manufacturer, manufacturers' representative or broker of any tier. A MBE/WBE Bidder does not need to submit a Letter of Intent, however they must list themselves and their level of participation on the designated MBE/WBE participation page bound herein. Each Letter of Intent shall be submitted only for the MBE/WBEs listed at the time of bid opening, since this is the only participation that will be counted toward satisfaction of the project goal. A form for the MBE/WBE Letter of Intent is included with the Bid Form. The MBE/WBE Letter of Intent is a written communication from the Bidder to the City evidencing an understanding that the Bidder has or will enter into a contractual relationship with the MBE/WBE or that its subcontractor(s) and supplier(s), manufacturer(s), manufacturers' representative(s) and broker(s) will do so. Each MBE/WBE Letter of Intent shall be accompanied by a copy of the City and County of Denver's MBE/WBE certification letter for each proposed MBE/WBE identified at bid time. Bidders are urged to carefully review these Letters before submission to the City to ensure that they are properly completed and executed by the appropriate parties.

In preparing a bid to demonstrate a good faith effort, bidders should consider the following instructions relating to compliance with the Ordinance:

1. If any Bidder has not met the designated Project goal at the time the bids are opened or elects to present a good faith effort in lieu of or in addition to attempting to satisfy the designated Project goal, that Bidder shall submit, on or before the third (3<sup>rd</sup>) working day after the bid opening a detailed statement, with supporting documentation, setting forth its good faith efforts, made prior to bid opening, attempting to meet the established goal in accordance with Section 28-62 of the Ordinance. This statement shall address each of the items in Subsection (b) of that Section and any additional criteria that the DSBO Director may establish by rule or regulation. A Bidder who fails to meet the Project goal and cannot show that it made a good faith effort to meet the goal shall be considered non-responsive.
2. The statement of good faith efforts shall include a specific response to each of the following as further defined by rule or regulation.. A Bidder may include any additional information the Bidder believes may be relevant. Failure of a Bidder to show good faith efforts as to any one of the following items shall render its overall good faith showing insufficient and its bid non-responsive. Items (1) through (10) of Section 28-62, Subsection (b) of the Ordinance are set forth below:
  - (1) If prebid or preselection meetings are scheduled by the City at which MBEs and WBEs may be informed of subcontracting or joint venture opportunities under a proposed contract to be bid, or procured pursuant to the competitive selection process, attendance at such prebid or preselection meetings is not mandatory; however, bidders



and proposers are responsible for the information provided at these meetings.

- (2) The bidder or proposer must solicit through all reasonable and available means, the interest of all MBEs and WBEs certified in the scopes of work of the contract. The bidder or proposer must solicit the interest of such MBEs and WBEs within sufficient time, prior to the bid opening or date of final project-specific proposal in the case of a competitive selection process, to allow such MBEs and WBEs to respond to the solicitation. The bidder or proposer must determine with certainty if the MBEs and WBEs are interested by demonstrating appropriate steps to follow up initial solicitations.
- (3) The bidder or proposer must select portions of the work of the contract to be performed by MBEs and WBEs in order to increase the likelihood that the project goal will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate MBE and WBE participation as subcontractors or joint venturers, and for bidder or proposer self-performed work, as suppliers, manufacturers, manufacturer's representatives and brokers, all reasonably consistent with industry practice, even when the bidder or proposer would otherwise prefer to perform these work items with its own forces. The bidder or proposer must identify what portions of the contract will be self-performed and what portions of the contract will be opened to solicitation of bids, proposals and quotes from MBE and WBEs. All portions of the contract not self-performed must be solicited for MBE and WBE participation. The ability or desire of a bidder or proposer to perform the work of a contract with its own forces does not relieve the bidder or proposer of the responsibility to meet the project goal or demonstrate good faith efforts to do so.
- (4) The bidder or proposer, consistent with industry practice, must provide MBEs and WBEs at a clearly stated location with timely, adequate access to and information about the plans, specifications, and requirements of the contract, including bonding and insurance requirements, if any, to assist them in responding to a solicitation.
- (5) The bidder or proposer must negotiate in good faith with interested MBEs and WBEs and provide written documentation of such negotiation with each such MBE or WBE.
- (6) For each MBE or WBE which contacted the bidder or proposer or which the bidder or proposer contacted or attempted to subcontract or joint venture with, consistent with industry practice, the bidder or proposer must supply a statement giving the reasons why the bidder or proposer and the MBE or WBE did not succeed in negotiating a subcontracting, supplier, manufacturer, manufacturer's representative, broker or joint venture agreement, as applicable.

- (7) The bidder or proposer must provide verification that it rejected each non-utilized MBE and WBE because the MBE or WBE did not submit the lowest bid or it was not qualified. Such verification shall include a verified statement of the amounts of all bids received from potential or utilized subcontractors, suppliers, manufacturers, manufacturer's representatives, brokers or joint venturers on the contract, whether or not they are MBEs or WBEs. In making such a determination of not being qualified, the bidder or proposer shall be guided by the definition of qualified in section 28-54(42), but evidence of lack of qualification must be based on factors other than solely the amount of the MBE's or WBE's bid. For each MBE or WBE found not to be qualified by the bidder or proposer, the verification shall include a statement giving the bidder's or proposer's reasons for its conclusion. A bidder's or proposer's industry standing or group memberships may not be the cause of rejection of an MBE or WBE. A bidder or proposer may not reject an MBE or WBE as being unqualified without sound reasons based on a reasonably thorough investigation and assessment of the MBE's or WBE's capabilities and expertise.
- (8) If requested by a solicited MBE or WBE, the bidder or proposer must make reasonable efforts to assist interested MBEs and WBEs in obtaining bonding, lines of credit, or insurance as required by the City or by the bidder or proposer, provided that the bidder or proposer need not provide financial assistance toward this effort.
- (9) If requested by a solicited MBE or WBE, the bidder or proposer must make reasonable efforts to assist interested MBEs and WBEs in obtaining necessary and competitively priced equipment, supplies, materials, or related assistance or services for performance under the contract, provided that the bidder or proposer need not provide financial assistance toward this effort.
- (10) The bidder or proposer must use the DSBO MBE/WBE directories to identify, recruit, and place MBEs and WBEs.

In accordance with the provisions of the Ordinance, the bidder agrees that it is committed to meeting either the MBE/WBE participation goal or the MBE/WBE participation set forth in its statement of good faith efforts. This commitment must be expressly indicated on the "Commitment to Minority/Women Business Enterprise Participation" form included with the Bid Form. This commitment includes the following understandings:

1. The bidder understands it must maintain MBE/WBE goals throughout the performance of the Contract pursuant to the requirements set out in D.R.M.C. 28-72.
2. The bidder understands that it must establish and maintain records and submit regular reports, as required, which will allow the City to assess progress in achieving the MBE/WBE participation goal.

3. The bidder understands that if change orders or any other contract modifications are issued under the contract, the bidder shall have a continuing obligation to immediately inform DSBO in writing of any agreed upon increase or decrease in the scope of work of such contract, upon any of the bases discussed in Section 28-73 of the Ordinance, regardless of whether such increase or decrease in scope of work has been reduced to writing at the time of notification.
4. The bidder understands that if change orders or other contract modifications are issued under the contract, that include an increase in scope of work of a contract for construction, reconstruction, or remodeling, whether by amendment, change order, force account or otherwise which increases the dollar value of the contract, whether or not such change is within the scope of work designated for performance by an MBE/WBE at the time of contract award, such change orders or contract modification shall be immediately submitted to DSBO for notification purposes. Those amendments, change orders, force accounts or other contract modifications that involve a changed scope of work that cannot be performed by existing project subcontractors or by the contractor shall be subject to a goal for MBE/WBEs equal to the original goal on the contract which was included in the bid. The contractor shall satisfy such goal with respect to such changed scope of work by soliciting new MBE/WBEs in accordance with Section 28-73 of the Ordinance as applicable, or the contractor must show each element of modified good faith set out in Section 28-75 (c) of the Ordinance. The contractor or consultant shall supply to the director the documentation described in Section 28-75 (c) of the Ordinance with respect to the increased dollar value of the contract.

All bidders are charged with knowledge of and are solely responsible for complying with each and every provision of the Ordinance in making a bid and, if awarded, in performing the work described in the Contract Documents. Failure to comply with these provisions could constitute cause for rejection of a bid or subject the selected contractor to sanctions set forth in the Ordinance. These instructions are intended only to generally assist the bidder in preparing and submitting a compliant bid. Should any questions arise regarding specific circumstances, bidders must consult the Ordinance or contact the Project's designated DSBO representative at (720) 913-1700.

## **IB-20 WAGE RATE REQUIREMENTS**

Pursuant to Section 20-76 of the Revised Municipal Code, the Proposer selected to perform this contract shall pay mechanics, laborers and workers employed directly upon the site of the work the full amounts accrued at the time of payment, computed wage rates not less than those shown on the current prevailing wage rate schedule included in the contract Proposal documents and any addenda thereto. If the City's Career Service Board issues a modification to those wage rates more than ten (10) days prior to the scheduled Proposal submission, those modifications will be published in an addendum issued by the City to all prospective Proposers. The City may, in its sole discretion, determine on a case-by-case basis whether wage rate modifications issued by the Career Service Board ten (10) days or less before the Proposal opening will be included in an addendum. If they are included in an

addendum, the City may, in its sole discretion, elect to postpone the date of Proposal opening.

If the term of the contract extends for more than one year, the minimum City prevailing wage rates which contractors and subcontractors shall pay during any subsequent yearly period or portion thereof shall be the wage rates in effect on the yearly anniversary date of the contract which begins such subsequent period. In no event shall any increases in prevailing wages after the first anniversary of the contract result in any increased liability on the part of the City and the possibility and risk of any such increase is assumed by all contractors entering into such contract with the City.

#### **IB-21 CONSTRUCTION SCHEDULING**

The Proposer should refer to the General Conditions, Special Conditions, and Division I of the Technical Specifications for scheduling requirements for this contract.

#### **IB-22 EQUAL EMPLOYMENT OPPORTUNITY**

1. Article III, Division 2 of Chapter 28 applies to this contract. 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 Proposers, 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 CFR Chapter 60-4.
2. After the Notice to Selected Proposer has been issued, the Selected Proposer shall submit the following to the Small Business Opportunity Division:
  - (a) A statement that the Proposer shall implement the affirmative action steps set forth in the Rules and Regulations and Proposal Conditions of the Manager of Public Works pertaining to Equal Employment Opportunity, attached hereto, or the Proposer'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 Small Business Opportunity Division will approve the Notice to Proceed.
3. The Proposer which 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 Proposal 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 Small Business Opportunity Division.

**IB-23 CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION**

The Proposer certifies, by submission of its Proposal 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 Proposal that it will include this clause without modification in all lower tier transactions, solicitations, proposals, contracts, and subcontracts. Where the Proposer or any lower tier participant is unable to certify to this statement, it shall attach an explanation to its Proposal.

**IB-24 CONTRACTOR/BIDDER/PROPOSER DISCLOSURE ORDINANCE**

Pursuant to D.R.M.C. 20-69, any Proposal in excess of \$100,000.00 must be accompanied by a separate detachable page setting forth the following information:

- (1) The name of any officer, director, owner or principal of the business entity, including identity of any shareholder who owns or controls 5% or more of the business entity, and either 1) the names of his or her spouse, and children under eighteen years of age; or 2) a statement that he or she or his or her spouse, or children, if any, under the age of eighteen have or have not made a contribution, as defined in D.R.M.C. 15-32, or contribution in kind, as defined in D.R.M.C. 15-32, to any candidate, as defined in D.R.M.C. 15-32, during the last five years and identifying by name himself or herself or any spouse or child under the age of eighteen who has made such a contribution or contribution in-kind to a candidate.
- (2) The names of any subcontractors or suppliers whose share of the Proposal exceeds \$100,000.00 of the contract or formal Proposal amount.
- (3) The names of any unions with which the Proposer has a collective bargaining agreement.

**If the total Proposal amount is in excess of \$500,000.00, the information required in (1) above must be provided at the time of Proposal submittal,** and the information required in (2) and (3) must be submitted in a timely fashion prior to award. The list of subcontractors required by this instrument is different and separate from the Proposing list required on BF-4.

**If the total Proposal amount is less than \$500,000.00 but more than \$100,000.00, such information must be provided prior to award of the contract.** Failure to provide the required information in a timely fashion shall render any Proposal to which D.R.M.C. 20-69 applies non-responsive.

While a Proposer or supplier who has already disclosed such information need not provide such information with a second or subsequent Proposal or proposal unless such information has changed, it shall be the responsibility of each such Proposer or

proposer to verify that such information is still current as of the date of such subsequent Proposal or proposal and is in fact on file with the City Clerk.

A form which may be used for such disclosure is contained in the Proposal Forms Section of the Contract Documents. The form is entitled: Proposer/Contractor/Vendor/Proposer Disclosure. Failure to provide or update the required information in a timely fashion shall render any Proposal to which D.R.M.C. 20-69 applies non-responsive.

#### **IB-25 INSURANCE REQUIREMENTS**

In preparing its Proposal, the Proposers shall assure that insurance requirements contained in the Contract Documents are met. In accordance with the provisions of General Contract Condition 1601, INSURANCE, the minimum insurance requirements for this Contract are set forth in the form **CITY AND COUNTY OF DENVER INSURANCE CERTIFICATE** contained in the Special Conditions Section of the Contract Documents. Proposers are urged to consider in preparing a Proposal hereunder that the Contractor and all subcontractors performing Work on the Project must comply with each condition, requirement or specification set forth in the form certificate, unless such requirements are specifically excepted in writing by the City's Risk Management Administrator. The Contractor must either include all subcontractors performing work hereunder as insureds under each required policy or furnish a separate certificate (on the form certificate provided) for each subcontractor.

#### **IB-26 EVALUATION OF QUALIFICATIONS**

The City's Evaluation and Selection Committee will review and evaluate the written qualifications based upon the Proposer's demonstrated experience and qualifications in the scope of services required. The Proposer's ability to present its qualifications in writing, in a clear, concise and organized manner will be considered in the evaluation. The City shall then, taking into consideration the recommendations of the Evaluation and Selection Committee and select the most qualified Proposer for contract negotiations. The following is the Qualifications Evaluation sheet used by the Selection Committee in evaluating the submissions.

## PROPOSAL SCORESHEET

Agreement Title: \_\_\_\_\_ Agreement \_\_\_\_\_ Number: \_\_\_\_\_

Proposer: \_\_\_\_\_ Review \_\_\_\_\_ Date: \_\_\_\_\_

Signature: \_\_\_\_\_

<u>RATING FACTORS</u>	
5 - EXCELLENT	2 - BELOW AVERAGE
4 - ABOVE AVERAGE	1 - POOR
3 - AVERAGE	0 - NONRESPONSIVE

Proposers were instructed to limit their proposal to 10 MB. Elements of the proposals which scorers should consider are as follows:	<b>WEIGHT FACTOR</b>	<b>RATING FACTOR (0-5)</b>	<b>SCORE</b>
1. EXPERIENCE/PAST PERFORMANCE			
2. KEY PERSONNEL REQUIREMENTS			
3. QUALITY CONTROL PLANS			
4. SCHEDULE OF PRICES AND QUANTITIES			
<b>TOTAL SCORE</b>			

**END OF THIS SECTION** |

# Prevailing Wages Schedules





**DENVER**  
THE MILE HIGH CITY

**Career Service Authority**  
Denver's Human Resource Agency

201 W. Colfax, Department 412  
Denver, CO 80202  
p: 720.913.5751  
f: 720.913.5720  
[www.denvergov.org/csa](http://www.denvergov.org/csa)

**TO:** All Users of the City of Denver Prevailing Wage Schedules  
**FROM:** Meredith Creme, Associate Human Resource Professional  
**DATE:** Friday August 26, 2011  
**SUBJECT:** Latest Change to Prevailing Wage Schedules

Please be advised, prevailing wage rates for some building, heavy, and highway construction trades have not been updated by the United States Department of Labor (DOL) since March 1, 2002. The Career Service Authority Board, in their meeting held on April 21, 2011, approved the use of the attached supplemental wage rates until prevailing wage rates for these classifications of work are again published by the United States Department of Labor in accordance with the Davis-Bacon Act. The rates will be provided as a supplemental to the Davis-Bacon Heavy rates issued by CSA.

The effective date for this publication will be **Friday August 26, 2011** and applies to the City and County of Denver for **HEAVY CONSTRUCTION PROJECTS** in accordance with the Denver Revised Municipal Code, Section 20-76(c).

General Wage Decision No. CO080012  
Superseded General Decision No. CO20070012

Modification No. 25  
Publication Date: 08-19-2011  
(10 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.

For questions please call (720) 913-5009

Attachments as listed above.

General Decision Number: CO100012 08/19/2011 CO12

Superseded General Decision Number: CO20080012

State: Colorado

Construction Type: Heavy

Counties: Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, El Paso, Jefferson, Larimer, Mesa, Pueblo and Weld Counties in Colorado.

HEAVY CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	03/12/2010
1	05/07/2010
2	05/21/2010
3	06/04/2010
4	07/02/2010
5	07/09/2010
6	07/16/2010
7	08/06/2010
8	08/13/2010
9	08/20/2010
10	09/03/2010
11	09/24/2010
12	10/08/2010
13	10/29/2010
14	12/03/2010
15	01/21/2011
16	01/28/2011
17	02/11/2011
18	05/06/2011
19	05/20/2011
20	06/24/2011
21	07/08/2011
22	07/15/2011
23	07/29/2011
24	08/12/2011
25	08/19/2011

ASBE0028-001 07/01/2010

	Rates	Fringes
Asbestos Workers/Insulator (Includes application of all insulating materials, protective coverings, coatings and finishings to all types of mechanical systems).....	\$ 30.23	11.53

BRCO0007-004 01/01/2011

ADAMS, ARAPAHOE, BOULDER, BROOMFIELD, DENVER, DOUGLAS AND JEFFERSON COUNTIES

Rates	Fringes
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BRICKLAYER.....\$ 22.13 9.89

\* BRCO0007-006 06/01/2011

EL PASO AND PUEBLO COUNTIES

	Rates	Fringes
BRICKLAYER.....	\$ 21.97	9.88

ELEC0012-004 06/01/2009

PUEBLO COUNTY

	Rates	Fringes
ELECTRICIAN		
Electrical work where the cost is \$150,000 or less....	\$ 22.85	10.79
Electrical work where the cost is over \$150,000.....	\$ 27.00	10.91

ELEC0068-001 06/01/2011

ADAMS, ARAPAHOE, BOULDER, BROOMFIELD, DENVER, DOUGLAS,  
JEFFERSON, LARIMER, AND WELD COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 31.60	12.52

ELEC0111-001 09/01/2010

	Rates	Fringes
Line Construction:		
Cable Splicer.....	\$ 28.65	13.75%+4.75
Equipment Operator-		
Underground.....	\$ 25.06	12.75%+4.75
Groundman.....	\$ 20.48	17.75%+4.75
Line Equipment Operator....	\$ 25.74	17.75%+4.75
Lineman and Welder.....	\$ 35.81	20.75%+4.75

ELEC0113-002 06/01/2011

EL PASO COUNTY

	Rates	Fringes
ELECTRICIAN.....	\$ 28.55	14.46

ELEC0969-002 06/01/2010

MESA COUNTY

	Rates	Fringes
ELECTRICIAN.....	\$ 20.75	5.66

ENGI0009-001 05/01/2010

	Rates	Fringes
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Power equipment operators:

Blade: Finish.....	\$ 23.97	9.22
Blade: Rough.....	\$ 23.67	9.22
Bulldozer.....	\$ 23.67	9.22
Cranes: 50 tons and under..	\$ 23.82	9.22
Cranes: 51 to 90 tons.....	\$ 23.97	9.22
Cranes: 91 to 140 tons.....	\$ 24.12	9.22
Cranes: 141 tons and over...	\$ 24.88	9.22
Forklift.....	\$ 23.32	9.22
Mechanic.....	\$ 25.97	9.22
Oiler.....	\$ 22.97	9.22
Scraper: Single bowl under 40 cubic yards.....	\$ 23.82	9.22
Scraper: Single bowl, including pups 40 cubic yards and over and tandem bowls.....	\$ 23.97	9.22
Trackhoe.....	\$ 23.82	9.22

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IRON0024-003 11/01/2009

	Rates	Fringes
Ironworkers:.....	\$ 24.80	12.12
Structural		

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LABO0086-001 05/01/2009

	Rates	Fringes
Laborers:		
Pipelayer.....	\$ 18.68	6.78

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PLUM0003-005 06/01/2010

ADAMS, ARAPAHOE, BOULDER, BROOMFIELD, DENVER, DOUGLAS,  
JEFFERSON, LARIMER AND WELD COUNTIES

	Rates	Fringes
PLUMBER.....	\$ 33.37	10.35

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PLUM0058-002 07/01/2011

EL PASO COUNTY

	Rates	Fringes
Plumbers and Pipefitters.....	\$ 32.05	12.85

-----  
PLUM0058-008 07/01/2011

PUEBLO COUNTY

	Rates	Fringes
Plumbers and Pipefitters.....	\$ 32.05	12.85

-----  
PLUM0145-002 07/01/2011

MESA COUNTY

	Rates	Fringes
Plumbers and Pipefitters.....	\$ 35.17	11.05

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 PLUM0208-004 06/01/2011

ADAMS, ARAPAHOE, BOULDER, BROOMFIELD, DENVER, DOUGLAS,  
 JEFFERSON, LARIMER AND WELD COUNTIES

	Rates	Fringes
PIPEFITTER.....	\$ 32.61	11.26

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 SHEE0009-002 01/01/2011

	Rates	Fringes
Sheet metal worker.....	\$ 31.66	10.98

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 SUCO2001-006 12/20/2001

	Rates	Fringes
BOILERMAKER.....	\$ 17.60	

Carpenters:

Form Building and Setting...	\$ 16.97	2.74
All Other Work.....	\$ 15.14	3.37

Cement Mason/Concrete Finisher...	\$ 17.31	2.85
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IRONWORKER, REINFORCING.....	\$ 18.83	3.90
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Laborers:

Common.....	\$ 11.22	2.92
Flagger.....	\$ 8.91	3.80
Landscape.....	\$ 12.56	3.21

Painters:

Brush, Roller & Spray.....	\$ 15.81	3.26
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Power equipment operators:

Backhoe.....	\$ 16.36	2.48
Front End Loader.....	\$ 17.24	3.23
Skid Loader.....	\$ 15.37	4.41

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 TEAM0435-001 05/01/2000

	Rates	Fringes
Truck drivers:		
Pickup.....	\$ 14.21	5.27
Tandem/Semi and Water.....	\$ 14.93	5.27

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

=====

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

---

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

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#### WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
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Wage and Hour Division  
U.S. Department of Labor  
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2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

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4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

**Career Service Authority**  
**Supplemental to the Davis-Bacon HEAVY Construction Projects rates**  
**(Specific to the Denver Projects)**  
**(Supp #69, Date: 08-26-2011)**

<b>Classification</b>		<b>Base</b>	<b>Fringe</b>
Millwrights		\$28.00	\$10.00
Line Construction:			
	Lineman, Gas Fitter/Welder	\$36.88	\$9.55
	Line Eq Operator/Line Truck Crew	\$25.74	\$8.09
Power Equipment Operators (Tunnels Above and Below Ground, shafts and raises):			
	GROUP 1	\$25.12	\$10.81
	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 Operators:			
	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
Ironworkers (Ornamental)		\$24.80	\$10.03
Laborers:			
	GROUP 1	\$17.68	\$8.22
	GROUP 2	\$18.18	\$8.27
	GROUP 3	\$21.59	\$8.61
Laborers: (Tunnel)			
	GROUP 1	\$18.53	\$8.30
	GROUP 2	\$18.63	\$8.31
	GROUP 3	\$19.73	\$8.42
	GROUP 4	\$21.59	\$8.61
	GROUP 5	\$19.68	\$8.42
Laborers (Removal of Asbestos)		\$21.03	\$8.55
Truck Drivers:			
	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



POWER EQUIPMENT OPERATOR CLASSIFICATIONS  
(TUNNELS ABOVE AND BELOW GROUND, SHAFTS, AND RAISES):

GROUP 1 - Brakeman  
GROUP 2 - Motorman  
GROUP 3 - Compressor  
GROUP 4 - Air Tractors; Grout Machine; Gunnite Machine; Jumbo Form  
GROUP 5 - Concrete Placement Pumps; Mucking Machines and Front End Loaders, Underground, Slusher; Mine Hoist Operator; Mechanic  
GROUP 6 - Mechanic Welder  
GROUP 7 - Mole

*NOTE: Any equipment listed below being used in tunnel work, below or above ground shall be paid not less than \$2.00 per hour above the listed wage rates.*

POWER EQUIPMENT OPERATOR CLASSIFICATIONS:

GROUP 1 - Air compressor, brakeman, drill operator - smaller than Watson 2500 and similar, operators of 5 or more light plants, welding machines, generators, single unit conveyor, pumps, vacuum well point system, tractor, under 70 hp with or without attachments compressors, 360 C.F.M. or less.

GROUP 2 - Conveyor, handling **building** materials, ditch witch and similar trenching machine, haulage motor man, pugmill, portable screening plant with or without a spray bar, screening plants, with classifier.

GROUP 3 - Asphalt screed, asphalt plant, backfiller, bituminous spreader or laydown machine; cableway signalman, caisson drill, William MF, similar or larger; C.M.I. and similar, concrete batching plants, concrete finish machine, concrete gang saw on concrete paving, concrete mixer, less than 1 yd., concrete placement pumps, under 8 inches, distributors, bituminous surfaces dozer, drill, diamond or core, drill rigs, rotary, churn, or cable tool, elevating graders, elevator operator, equipment, lubricating and service engineer, grout machine, gunnite machine, hoist, 1 drum, horizontal directional drill operator, sandblasting machine, single unit portable crusher, with or without washer, tie tamper, wheel mounted, tractor, 70 hp and over with or without attachments, trenching machine operator, winch on truck.

GROUP 4 - Cable operated power shovels, draglines, clamshells, and backhoes, 5 cubic yards and under, concrete mixer over 1 cubic yard, concrete paver 34E or similar, concrete placement pumps, 8 inches and over, grade checker, hoist, 2 drums, hydraulic backhoe, 3/4 yds and over, loader, over 6 cubic yards, mechanic, mixer mobile, multiple unit portable crusher, with or without washer; piledriver, tractor with sideboom, roto- mill and similar, welder.

GROUP 5 - Cable operated power shovels, draglines, clamshells and backhoes over 5 cubic yards, caisson drill Watson 2500 similar or larger, hoist 3 drum or more, mechanic – welder (heavy-duty).

GROUP 6 - Cableway, derrick, quad nine push unit, wheel excavator, belt or elevating loader

GROUP 7 - tower cranes all types

LABORER CLASSIFICATIONS:

GROUP 1 - Janitors; Yardmen

GROUP 2 - including caissons to 8' carrying Reinforcing Rods; Dowel Bars; Fence Erectors; Fire Watchers on power plants and oilrefineries; Gabion Basket and Reno mattresses; Signaling, Metal Mesh; pipe plants and yards; Shrubs and flowers; Stake Caser; Traffic Control Devices; Tie Bars and Chairs in Concrete; Paving; Waterproofing Concrete; Air, Gas, Hydraulic Tools and Electrical Tool Operators; Barco Hammers; Cutting Torches; drill; diamond and core drills; Core, diamond, air track including but not limited to; Joy, Mustang, PR-143, 220 Gardner-**Denver**, Hydrosonic, and water blaster operator; Chuck Tender; Electric hammers; Jackhammers; Hydraulic Jacks; Tampers; Air Tampers; Boring Machines; Air Hydraulic Boring machines; Automatic Concrete Power Curbing

Machines; Concrete Processing Material; form setters; Highways, Streets, and Airports runways; Operators of concrete saws on pavement (other than gangsaws); Power operated Concrete Buggies; Hot Asphalt Labor; Asphalt Curb Machines; Paving Breakers; Transverse Concrete Conveyor Operator; Cofferdams; Boxtenders; Caisson 8' to 12'; Caisson Over 12'; Jackhammer Operators in Caissons over 12'; Labor applicable to Pipe coating or Wrapping; Pipe Wrappers, Plant and Yard; Relining Pipe; Hydroliner (a plastic may be used to waterproof); Pipelayer on Underground Bores; Sewer, Water, Gas, Oil and Telephone Conduit; Enamalers on Pipe, inside and out, Mechanical Grouters; Monitors; Jeep Holiday Detector Men; Pump Operators; Rakers; Vibrators; Hydro- broom, Mixer Man; Gunnite Nozzelmen; Shotcrete Operator; and chain saws, gas and electric; Sand Blaster; Licensed Powdermen; Powdermen and Blaster; Siphons; Signalmen; Dumpman/spotter; Grade Checker.

GROUP 3 - Plug and galleys in dams; Scalers; any work on or off Bridges 40' above the ground performed by Laborers working from a Bos'n Chair, Swing Stage, Life Belt, or Block and Tackle as a safety requirement.

#### TUNNEL LABORER CLASSIFICATIONS:

GROUP 1 - Outside Laborer - Above ground

GROUP 2 - Minimum Tunnel Laborer, Dry Houseman

GROUP 3 - Cable or Hose Tenders, Chuck Tenders, Concrete Laborers, Dumpmen, Whirley Pump Operators

GROUP 4 - Tenders on Shotcrete, Guniting and Sand Blasting; Tenders, core and Diamond Drills; Pot Tenders

GROUP 5 - Collapsible Form Movers and Setters; Miners; Machine Men and Bit Grinders; Nippers; Powdermen and Blasters; Reinforcing Steel Setters; Timbermen (steel or wood tunnel support, including the placement of sheeting when required); and all Cutting and Welding that is incidental to the Miner's work; Tunnel Liner Plate Setters; Vibrator Men, Internal and External; Unloading, stopping and starting of Moran Agitator Cars; Diamond and Core Drill Operators; Shotcrete operator; Gunnite Nozzelmen; Sand Blaster; Pump Concrete Placement Men.

#### TRUCK DRIVER CLASSIFICATIONS:

GROUP 1 - Sweeper Truck, Flat Rack Single Axle and Manhaul, Shuttle Truck or Bus.

GROUP 2 - Dump Truck Driver to and including 6 cubic yards, Dump Truck Driver over 6 cubic yards to and including 14 cubic yards, Straddle Truck Driver, Liquid and Bulk Tankers Single Axle, Euclid Electric or Similar, Multipurpose Truck Specialty and Hoisting.

GROUP 3 - Truck Driver Snow Plow.

GROUP 4 - Cement Mixer Agitator Truck over 10 cubic yards to and including 15 cubic yards.

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



**DENVER**  
THE MILE HIGH CITY

**Career Service Authority**  
Denver's Human Resource Agency

201 W. Colfax, Department 412

Denver, CO 80202

p: 720.913.5751

f: 720.913.5720

[www.denvergov.org/csa](http://www.denvergov.org/csa)

**TO:** All Users of the City of Denver Prevailing Wage Schedules  
**FROM:** Meredith Creme, Associate Human Resource Professional  
**DATE:** Friday August 19, 2011  
**SUBJECT:** Latest Change to Prevailing Wage Schedules

Please be advised, prevailing wage rates for some building, heavy, and highway construction trades have not been updated by the United States Department of Labor (DOL) since March 1, 2002. The Career Service Authority Board, in their meeting held on April 21, 2011, approved the use of the attached supplemental wage rates until prevailing wage rates for these classifications of work are again published by the United States Department of Labor in accordance with the Davis-Bacon Act. The rates will be provided as a supplemental to the Davis-Bacon Highway rates issued by CSA.

The effective date for this publication is **Friday August 19, 2011** and applies to the City and County of Denver for **HIGHWAY CONSTRUCTION PROJECTS** in accordance with the Denver Revised Municipal Code, Section 20-76(c).

General Wage Decision No. CO080014  
Superseded General Decision No. CO20070014  
Modification No. 7  
Publication Date: 08-12-2011  
(11 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.

For questions call (720) 913-5009

Attachments as listed above.

General Decision Number: CO100014 08/12/2011 CO14

Superseded General Decision Number: CO20080014

State: Colorado

Construction Type: Highway

Counties: Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, El Paso, Jefferson, Larimer, Mesa, Pueblo and Weld Counties in Colorado.

HIGHWAY CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	03/12/2010
1	05/07/2010
2	06/04/2010
3	08/06/2010
4	10/08/2010
5	07/15/2011
6	07/29/2011
7	08/12/2011

ELEC0012-005 06/01/2009

PUEBLO COUNTY

	Rates	Fringes
ELECTRICIAN (Excluding traffic signal installation)		
Electrical work where the total cost is \$150,000 or less.....	\$ 22.85	10.79
Electrical work where the total cost is over \$150,000.	\$ 27.00	10.91
TRAFFIC SIGNALIZATION:		
Traffic Signal Installation		
Zone 1.....	\$ 23.83	13.75%+4.75
Zone 2.....	\$ 26.83	13.75%+4.75

TRAFFIC SIGNAL INSTALLER ZONE DEFINITIONS

Zone 1 shall be a 35 mile radius, measured from the following addresses in each of the following cities:  
 Colorado Springs - Nevada & Bijou  
 Denver - Ellsworth Avenue & Broadway  
 Ft. Collins - Prospect & College  
 Grand Junction - 12th & North Avenue  
 Pueblo - I-25 & Highway 50  
 All work outside of these areas shall be paid Zone 2 rates.

ELEC0068-012 06/01/2011

ADAMS, ARAPAHOE, BOULDER, BROOMFIELD, DENVER, DOUGLAS, JEFFERSON, LARIMER AND WELD COUNTIES

Rates Fringes

ELECTRICIAN (Excluding traffic signal installation).....	\$ 31.60	12.52
TRAFFIC SIGNALIZATION:		
Traffic Signal Installation		
Zone 1.....	\$ 23.83	13.75%+4.75
Zone 2.....	\$ 26.83	13.75%+4.75

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\* ELEC0113-005 06/01/2011

EL PASO COUNTY

	Rates	Fringes
ELECTRICIAN.....	\$ 28.55	14.46
TRAFFIC SIGNALIZATION:		
Traffic Signal Installation		
Zone 1.....	\$ 23.83	13.75%+4.75
Zone 2.....	\$ 26.83	13.75%+4.75

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ELEC0969-005 06/01/2009

MESA COUNTY

	Rates	Fringes
ELECTRICIAN (Excluding traffic signal installation).....	\$ 20.31	8.92
TRAFFIC SIGNALIZATION:		
Traffic Signal Installation		
Zone 1.....	\$ 23.83	13.75%+4.75
Zone 2.....	\$ 26.83	13.75%+4.75

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ENGI0009-002 05/01/2010

	Rates	Fringes
Power equipment operators:		
Asphalt Screed.....	\$ 23.67	9.22
Bituminous or Asphalt Spreader/Laydown Machine....	\$ 23.67	9.22
Bulldozer.....	\$ 23.67	9.22
Crane: 50 tons and under...	\$ 23.82	9.22
Crane: 51 to 90 tons.....	\$ 23.97	9.22
Crane: 91 to 140 tons.....	\$ 24.12	9.22
Crane: 141 tons and over....	\$ 24.88	9.22
Drill Operator: William MF/Watson 2500 only.....	\$ 23.97	9.22
Grader/Blade: Finish.....	\$ 23.97	9.22
Grader/Blade: Rough.....	\$ 23.67	9.22
Loader: Barber Green, etc. & Up to and including 6 cubic yards.....	\$ 23.67	9.22
Loader: Mechanic/Welder (heavy duty).....	\$ 23.97	9.22
Loader: Over 6 cubic yards..	\$ 23.82	9.22
Mechanic and/or Welder (Includes heavy duty & combination mechanic and welder):.....	\$ 26.12	9.22
Oiler.....	\$ 22.97	9.22
Power Broom: 70 HP and over..	\$ 23.67	9.22
Power Broom: Under 70 HP....	\$ 22.97	9.22
Roller (excluding dirt & soil compaction): Self-propelled, all types over 5 tons.....	\$ 23.67	9.22
Roller (excluding dirt & soil compaction): Self-propelled, rubber tires under 5 tons.....	\$ 23.32	9.22
Scraper: Single bowl including pups 40 cubic yards and tandem bowls and over.....	\$ 23.97	9.22
Scraper: Single bowl under 40 cubic yards.....	\$ 23.82	9.22
Trackhoe.....	\$ 23.82	9.22

LABO0086-002 05/01/2009

Rates                      Fringes

Laborers:

Asphalt Laborer/Raker, Common Laborer & Concrete Laborer/Mason Tender.....	\$ 18.68	6.78
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SUCO2001-003 12/20/2001

	Rates	Fringes
BRICKLAYER.....	\$ 15.55	2.85

Carpenters:

Form Work (Excluding Curbs & Gutters).....	\$ 16.54	3.90
All Other Work.....	\$ 16.61	3.88

Concrete Finisher/Cement Mason...	\$ 16.05	3.00
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Ironworkers:

Bridge Rail (Excludes Guardrail).....	\$ 18.22	6.01
Reinforcing.....	\$ 16.69	5.45

Laborers:

Fence Erector (Includes fencing on bridges).....	\$ 13.02	3.20
Form Work (Curbs & Gutters only).....	\$ 11.85	3.45
Guardrail Erector (Excludes bridgerail).....	\$ 12.89	3.20
Landscape and Irrigation Laborer.....	\$ 12.26	3.16
Pipelayer.....	\$ 13.55	2.41
Striping Laborer (Pre-form layout and removal of pavement markings).....	\$ 12.62	3.21
Traffic and Sign Laborer (Sets up barricades and cones, and installs permanent signs).....	\$ 12.43	3.22
Traffic Director/Flagger....	\$ 9.55	3.05

Painters:

Brush.....	\$ 16.94	2.10
Spray.....	\$ 16.99	2.87

Power equipment operators:

Backhoes.....	\$ 16.54	4.24
Bobcat/Skid Loader.....	\$ 15.37	4.28
Compactor - Dirt & Soil Only.....	\$ 16.70	3.30
Concrete Pump Operator.....	\$ 16.52	4.30
Drill Operator: All except William MF/ Watson 2500.....	\$ 16.74	2.66
Forklift.....	\$ 15.91	4.09
Post Driver/Punch Machine...	\$ 16.07	4.41
Rotomill Operator.....	\$ 16.22	4.41
Tractor.....	\$ 13.13	2.95

TRAFFIC SIGNALIZATION:

Traffic Signal Installation		
Groundman		
Class C.....	\$ 11.44	3.25
Truck drivers:		
Floats-Semi Truck.....	\$ 14.86	3.08
Multipurpose Truck-		
Specialty & Hoisting.....	\$ 14.35	3.49
Pickup Truck (Includes		
Pilot and Sign/Barricade		
Truck).....	\$ 13.93	3.68
Single Axle Truck.....	\$ 14.24	3.77
Truck Mechanic.....	\$ 16.91	3.01

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TEAM0435-002 05/01/2000

	Rates	Fringes
Truck drivers:		
Distributor Truck.....	\$ 15.80	5.27
Dump Truck: Over 14 cubic		
yards to and including 29		
cubic yards.....	\$ 15.27	5.27
Dump Truck: Over 29 cubic		
yards to and including 79		
cubic yards.....	\$ 15.80	5.27
Dump Truck: Over 79 cubic		
yards.....	\$ 16.45	5.27
Dump Truck: To and		
including 6 cubic yards &		
over 6 cubic yards to and		
including 14 cubic yards;		
Water Truck.....	\$ 14.93	5.27
Low Boy Truck.....	\$ 17.25	5.27

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

=====

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**(Specific to the Denver Projects)**  
**(Supp 34, Date: 08-19-11)**

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	GROUP 6	\$24.12	\$10.71
	GROUP 7	\$24.88	\$10.79
Ironworkers (Ornamental)		\$24.80	\$10.03
Laborers (Removal of Asbestos)		\$21.03	\$8.55
Plumbers		\$30.19	\$13.55
Pipefitters		\$30.45	\$12.85
Truck Drivers:			
	GROUP 1	\$18.42	\$10.00
	GROUP 2	\$19.14	\$10.07
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	GROUP 5	\$20.66	\$10.23
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(TUNNELS ABOVE AND BELOW GROUND, SHAFTS, AND RAISES):

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GROUP 2 - Motorman

GROUP 3 - Compressor

GROUP 4 - Air Tractors; Grout Machine; Gunnite Machine; Jumbo Form

GROUP 5 - Concrete Placement Pumps; Mucking Machines and Front End Loaders, Underground, Slusher; Mine Hoist Operator; Mechanic

GROUP 6 - Mechanic Welder

GROUP 7 - Mole

*NOTE: Any equipment listed below being used in tunnel work, below or above ground shall be paid not less than \$2.00 per hour above the listed wage rates.*

POWER EQUIPMENT OPERATOR CLASSIFICATIONS:

GROUP 1 - Air compressor, brakeman, drill operator -smaller than Watson 2500 and similar, operators of 5 or more light plants, welding machines, generators, single unit conveyor, pumps, vacuum well point system, tractor, under 70 hp with or without attachments compressors, 360 C.F.M. or less

GROUP 2 - Conveyor, handling building materials, ditch witch and similar trenching machine, forklift, haulage motor man, pugmill, portable screening plant with or without a spray bar, screening plants, with classifier, self-propelled roller, rubber-tires under 5 tons.

GROUP 3 - asphalt plant, backfiller; cableway signalman; C.M.I. and similar, concrete batching plants, concrete finish machine, concrete gang saw on concrete paving, concrete mixer, less than 1 yd., under 8 inches, distributors, bituminous surfaces dozer, drill, diamond or core, elevating graders, elevator operator, lubricating and service engineer, grout machine, gunnite machine, hoist, 1 drum, horizontal directional drill operator, hydraulic backhoes; road stabilization machine, sandblasting Machine, single unit portable crusher, with or without washer, Tie tamper, wheel mounted, trenching machine operator, winch on truck.

GROUP 4 - Cable operated power shovels, draglines, clamshells, 5 cubic yards and under, concrete mixer over 1 Cubic yard, concrete pavers 34E or similar, grade Checker, hoist, 2 drums, mechanic, mixer mobile, Portable crusher, with or without washer; tractor with sideboom, roto-M ill and similar, welder.

GROUP 5 - Cable operated power shovels, draglines, clamshells and Backhoes over 5 cubic yards, caisson drill Watson 2500 similar or larger, motor grader blade-finish, hoist 3 drum or more.

GROUP 6 - Cableway, derrick, quad nine push unit, wheel excavator, belt or elevating loader.

GROUP 7 - tower cranes all types.

TRUCK DRIVER CLASSIFICATIONS:

GROUP 1 - Greasemen, Servicemen and Ambulance Drivers, Battery Men, Shuttle Truck or Bus, Flat Rack Tandem Axle.

GROUP 2 - Fork Lift Driver, Straddle Truck Driver, Lumber Carrier, Liquid and Bulk Tankers Single Axle, Combination, Euclid Electric or Similar, Specialty and Hoisting, Truck Drivers Fuel Truck, Grease Truck, Combination Fuel and Grease.

GROUP 3 - Truck Driver Snow Plow, Truck Driver Dump or Type Jumbo and similar type equipment.

GROUP 4 - Cement Mixer Agitator Truck over 10 cubic yards to and including 15 cubic yards, Tire Man, Cab Operated Distributor Truck Driver.

GROUP 5 - Heavy Duty Diesel Mechanic, Body Man, Welders or Combination Men.

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



**REQUEST FOR PROPOSAL**  
**ON-CALL CONSTRUCTION**  
**SERVICES 2012-13 Terminal Roadway &**  
**Garage Repairs**

CONTRACT NO: 201102006

AUGUST 31, 2011

**John Rohrer Contracting Co., Inc.**  
**Proposal**  
**September 29th, 2011**

**DEPARTMENT OF AVIATION**  
**City & County of Denver**  
Kim Day, Manager



**DENVER INTERNATIONAL AIRPORT**

**PLANNING & DEVELOPMENT DIVISION**

**CITY AND COUNTY OF DENVER**  
DEPARTMENT OF AVIATION  
DENVER INTERNATIONAL AIRPORT  
**On-Call Construction Services 2012-13 Terminal Roadway & Garage  
Repairs**  
Contract No. 201102006  
**Proposal Forms**  
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**CITY AND COUNTY OF DENVER**  
DEPARTMENT OF AVIATION  
DENVER INTERNATIONAL AIRPORT  
**On- On-Call Construction Services 2012-13 Terminal Roadway &  
Garage Repairs**  
Contract No. 201102006

Proposal Letter

PROPOSER John Rohrer Contracting Co., Inc.

Manager of Aviation  
City and County of Denver  
Business Management Services (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 Proposals first published on August 31, 2011, for Contract No. 201102006, Denver International Airport, On-Call Construction Services 2012-13 Terminal Roadway & Garage Repairs.

The project consists of an ON-CALL CONSTRUCTION SERVICES contract. Work will consist of concrete repairs and moisture protection for Terminal Roadways and the Terminal Parking structures at Denver International Airport. Projects will be incorporated into the Contract through Task Orders.

The undersigned Proposer declares that it has carefully read and examined all of the contract documents which include, but are not limited to, the Technical Specifications, Construction Contract General Conditions, Special Conditions, Instructions to Proposers, and EEO provisions. Proposer 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 and the Task Order Documents as provided.

The undersigned acknowledges receipt, understanding and full consideration of the following addenda to the Contract Documents:

Addenda Nos.: Addenda #1 (9/14/2011)

The undersigned agrees that this Proposal 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 Proposals are opened or until after a contract for the work described in these Proposal documents is fully executed by the City, whichever date is earlier.

The undersigned Proposer hereby agrees to appear at Denver International Airport, Business Management Services Office, Room 8810, Airport Office Building, at any time within five (5)



working days from the date of a written notice from the Manager to do so, mailed and/or faxed to the business address of Proposer and at that time the Proposer shall: (1) deliver an executed Contract which conforms with this Proposal; (2) furnish the required performance and payment bonds in the sum of the Total Contract Proposal Amount shown above, executed by a surety company acceptable to the Manager; and (3) furnish the required insurance documents.

Enclosed herewith is a Proposal guarantee, as defined in the Instructions to Proposers, in the amount of which Proposal guarantee the undersigned Proposer agrees is to be paid to and become the property of the City as liquidated damages should the Proposal be considered to be the best by the City and the undersigned Proposer notified that it is the apparent low Proposer 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 five (5) working days as stipulated above.

Attached and incorporated herein are the following proposal forms: Experience and Past Performance Information Form; Key Personnel Information Form; Quality Control Plans Form, Schedule of Prices and Quantities, and Proposal Data Forms. All of the forms must be completed. Proposer acknowledges that the City may incorporate, at its option, any or all of the data submitted by the Proposer into a contract arising out of this Proposal.

The undersigned Proposer acknowledges the right of the City to waive informalities in the Proposals, to reject any or all Proposals submitted, and to re-advertise for Proposals.

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 Proposal 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 Proposal 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 proposing in connection with this Proposal.

Dated this 29TH day of SEPTEMBER, 2011.

**BUSINESS ADDRESS OF PROPOSER:**

2820 ROE LANE, BLDG. 5

KANSAS CITY, KS 66103

City, State, Zip Code:

Telephone Number of Proposer:

913/236.5005

Fax Number of Proposer:

913/236.7291

Social Security or Employer Id. No. of Proposer:

48-0530087

**SIGNATURE OF PROPOSER:**

*If a Corporation:*

**PRINT NAME OF CORPORATION:**

JOHN ROHRER CONTRACTING COMPANY, INC.

Attest:  
(Corporate Seal)

*Michelle L. Lavis*  
Secretary

a MISSOURI Corporation

By: *John Rohrer*  
President

*If a Limited Liability Company:*

**PRINT NAME OF LIMITED LIABILITY COMPANY:**

\_\_\_\_\_

Organized in the State of \_\_\_\_\_

By: \_\_\_\_\_  
Manager

[Signature blocks for partnerships, limited partnerships and joint ventures are on following pages]

***If a Partnership:***

PRINT NAME OF PARTNERSHIP:

\_\_\_\_\_

By: \_\_\_\_\_  
General Partner

***If an Individual:***

\_\_\_\_\_, doing

business as \_\_\_\_\_

Signature: \_\_\_\_\_

(Signature blocks for joint ventures are on the next page)

***If a Joint Venture, signature of all Joint Venture partners is required:***

PRINT NAME OF JOINT VENTURE:

Joint Venture Partner --  
Name of Firm:

Corporation ( ) or Partnership ( )

By: \_\_\_\_\_  
Signature

Title: \_\_\_\_\_

*Required for a corporation:*

ATTEST:  
(Corporate Seal)

\_\_\_\_\_  
Secretary

Joint Venture Partner --  
Name of Firm:

Corporation ( ) or Partnership ( )

By: \_\_\_\_\_  
Signature

Title: \_\_\_\_\_

*Required for a corporation:*

ATTEST:  
(Corporate Seal)

\_\_\_\_\_  
Secretary

Joint Venture Partner --  
Name of Firm:

Corporation ( ) or Partnership ( )

By: \_\_\_\_\_  
Signature

Title: \_\_\_\_\_

*Required for a corporation:*

ATTEST:  
(Corporate Seal)

\_\_\_\_\_  
Secretary

Joint Venture Partner --  
Name of Firm:

Corporation ( ) or Partnership ( )

By: \_\_\_\_\_  
Signature

Title: \_\_\_\_\_

*Required for a corporation:*

ATTEST:  
(Corporate Seal)

\_\_\_\_\_  
Secretary

# CITY AND COUNTY OF DENVER

DEPARTMENT OF AVIATION  
DENVER INTERNATIONAL AIRPORT

## On-Call Construction Services 2012-13 Terminal Roadway & Garage Repairs

Contract No. 201102006

### (1) EXPERIENCE AND PAST PERFORMANCE INFORMATION FORM

\*\*\*See attached Experience / Past Performance letter following this section.

Please refer to IB-8 for a statement of the criteria to be considered in evaluating this portion of the proposal.

Provide a statement of the Proposer's experience with meeting schedules, experience in the specialized work of this contract, with managing costs, with solving problems, with making repairs during the warranty period and with the ability to satisfy previous customers. Identify any special circumstances where the project presented difficult technical, customer or coordination issues and describe how you resolved the issue.

In addition, provide the following information for up to three construction projects which the Proposer has performed for governmental agencies within the past five years:

#### PROJECT NO. 1:

Name of governmental agency: City & County of Denver

Parking Structure Repairs & Moisture

Name of Project: Protection - Level 5 - 2011 Location: Denver Airport

Completion date: Ant. 10/26/2011 Contract amount: \$3,474,679.00

Description of project: Project to make repairs to the 5 level of Mods 2-3 East & 2-3 West, to extend service life of the structures. Structural repairs made to precast pourstrips, precast double tee's, double tee flange connection repairs, replacement of expansion joints, and misc. additional structural component repairs. Protection from moisture and de-icing chemicals to include sealant replacement, traffic coating replacement, installation of epoxy broadcast overlay. These repairs are made in close proximity to the general public and near terminal operations such as baggage make-up on level 3 of various garages. Special considerations include but are not limited to: Dust control, water control, traffic control (close coordination with the Parking Office), noise control, etc.

Name, address and telephone number of project manager for contracting agency:

CCD Project Manager: Mr. Bill Shirk

8500 Pena Blvd.

Denver, CO 80249

Phone: (303) 342-2606

**PROJECT NO. 2:**

Name of governmental agency: City & County of Denver

Parking Structure Moisture Protection

Name of Project: Phase III Location: Denver Airport

Completion date: 11/24/2009 Contract amount: \$6,772,301.17

Description of project: Project to make repairs to the Levels 1 through 4 of Mods 2-3 West, to extend service life of the structures. Structural repairs made to precast pourstrips, precast double tee's, double tee flange connection repairs, replacement of expansion joints, and misc. additional structural component repairs. Protection from moisture and de-icing chemicals to include sealant replacement, traffic coating replacement, installation of epoxy broadcast overlay.

These repairs are made in close proximity to the general public and near terminal operations such as baggage make-up on level 3 of various garages.

Special considerations include but are not limited to: Dust control, water control, traffic control (close coordination with the Parking Office), noise control, etc.

Name, address and telephone number of project manager for contracting agency:

CCD Project Manager: Mr. Bill Shirk

8500 Pena Blvd.

Denver, CO 80249

Phone: (303) 342-2606

**PROJECT NO. 3:**

Name of governmental agency: City & County of Denver  
Parking Structure Moisture Protection

Name of Project: Phase II Location: Denver Airport

Completion date: 10/31/2008 Contract amount: \$12,748,379.58

Description of project: Project to make repairs to the Levels 1 to 4 of Mods 1-3 East & Mod 1 West, to extend service life of the structures. Structural repairs made to precast pourstrips, precast double tee's, double tee flange connection repairs, replacement of expansion joints, and misc. additional structural component repairs. Protection from moisture and de-icing chemicals to include sealant replacement, traffic coating replacement, installation of epoxy broadcast overlay.

These repairs are made in close proximity to the general public and near terminal operations such as baggage make-up on level 3 of various garages. Special considerations include but are not limited to: Dust control, water control, traffic control (close coordination with the Parking Office), noise control, etc.

Name, address and telephone number of project manager for contracting agency:

CCD Project Manager: Mr. Bill Shirk  
8500 Pena Blvd.  
Denver, CO 80249  
Phone: (303) 342-2606



September 29, 2011

City and County of Denver  
Denver International Airport  
Department of Aviation  
Airport Office Building  
8500 Pena Boulevard  
Denver, CO 80249

RE: On Call Services 2012-13 Terminal Roadway & Garage Repairs – Contract No. 201102006

#### **Experience and Past Performance Information**

John Rohrer Contracting Company (JRCC) has been extensively involved with the same or similar types of repairs as detailed for the above referenced project. Since 2000' JRCC has performed over \$ 30,000,000.00 worth of these types of repairs for Denver International Airport (DIA). We have completed every phase of the DIA Parking Garage Repairs and Moisture Protection Contracts since their inception; except for the Level 5 Repairs on MOD 1 East and MOD 1 West completed in 2010'. All of the listed projects have been completed within the established budget and on or ahead of schedule.

JRCC has worked hand in hand with DIA and its consultants to resolve a variety of complex problems that have been encountered on past projects. An excellent example of this would include our involvement in the repair of the rotated structural "L" beams located at the garage entrance bridges in 2008'. JRCC worked with DIA Project Manager Bill Shirk; the Project Consultants Walker Restoration; and the original pre-cast manufacturer Rocky Mountain Prestressed. Together with this team JRCC developed and safely executed a technically complex repair in which we removed the load of the garage entrance bridges from the "L" beams; replaced the bearing pads; lifted / rotated the "L" beams back to their designed position; installed fabricated stiffeners to keep the beams in place and included the removal and replacement of the expansion joints between the garage and entrance bridges.

All of the repairs that JRCC has provided for DIA on our past projects have met or exceeded their intended lifespan with few if any warranty claims. We have been continuously tested on past projects with our ability to work with several of the agencies / vendors at DIA and always under the scrutiny of the public eye. We have consistently responded to DIA and public complaints whether founded or not and have resolved any and all claims in a timely and efficient manner. There is not a single contractor that has more experience working with DIA in the public environment while performing the specified / detailed repairs similar to those in this proposal.

#### **Also for your review:**

Please see attached partial listing of other JRCC completed restoration projects over the past 5 years with similar types of repairs as in this contract.



# Project Reference List

John Rohrer Contracting Co., Inc.

## Restoration

### LA Dodger Stadium Seating Restoration

<b>Completion Date:</b>	3/5/2006	Los Angeles	California
<b>Project PM</b>	Jim Spencer	<b>Contract Amount:</b>	\$2,809,460.00
<b>Project Supt.</b>	Kevin Kesinger	<b>Owner's Contact:</b>	Mr. Scott Regolino (323) 224-1310
300,000 sf	Concrete Sealer Application		
17,000 lf	Seal Random Cracks		
10,000 lf	Waterstop Removal & Replacement		
3,500 ea	Precast Concrete Connection Repairs		

### Barney Allis Plaza Garage Repairs

<b>Completion Date:</b>	4/1/2006	Kansas City	Missouri
<b>Project PM</b>	Curtis Barkley	<b>Contract Amount:</b>	\$1,052,624.00
<b>Project Supt.</b>	Mark Eckhoff	<b>Owner's Contact:</b>	Mark Weckworth (913) 438-3002
10,000 sf	Overhead Soffit Shotcrete Replacement		
10,000 sf	Overhead Soffit Removal		
6,000 sf	Delaminated Concrete Floor Repair		
5,000 ea	Sacrificial Anode Installation		

### One Denver Highlands

<b>Completion Date:</b>	8/15/2006	Aurora	CO
<b>Project PM</b>	Kirt Courkamp	<b>Contract Amount:</b>	\$365,117.49
<b>Project Supt.</b>	David Hotchkiss	<b>Owner's Contact:</b>	Ms. Lisa Stanley (720) 529-1966
12,650 sf	Vehicular Traffic Coating (Isoflex 750/760)		
5,000 lf	Joint Sealant (Isoflex 880GB/881)		
2,100 lf	Epoxy Injection (Kemko 068 LoVis)		
1,620 lf	Plumbing - New Drain Piping		
1,520 sf	Delaminated Concrete Floor Repair		
67 ea	Plumbing - New Drains		

### 1735 Stout Parking Garage

<b>Completion Date:</b>	5/2/2007	Denver	CO
<b>Project PM</b>	Kirt Courkamp	<b>Contract Amount:</b>	\$34,500.00
<b>Project Supt.</b>	David Hotchkiss	<b>Owner's Contact:</b>	Mr. Rob Bassett (303) 893-9402
15,600 sf	Install Concrete Sealer (Hydrozo 100)		
2,520 lf	Control Joint Sealant (Isoflex 880GB/881)		
620 lf	Cove Joint Sealant (Isoflex 880GB/881)		

### Monoco Parking Garage Sealer

<b>Completion Date:</b>	7/1/2007	Greenwood Villa	CO
<b>Project PM</b>	Kirt Courkamp	<b>Contract Amount:</b>	\$25,000.00
<b>Project Supt.</b>	David Hotchkiss	<b>Owner's Contact:</b>	Andy Pickens (720) 624-0886
64,724 sf	Install Concrete Sealer (Hydrozo 100)		

**1391 Speer Blvd Parking Structure Repair**

**Project PM** Kirt Courkamp

**Project Supt.** Mark Eckhoff

- 3,284 lf Epoxy Injection (Kemko 068 LoVis)
- 1,863 sf Delaminated Concrete Floor Repair
- 95 ea PT Tendon Recondition
- 27 ea PT Splice Repairs
- 16 ea PT Center Stress Repair
- 4 ea PT End Anchor Repair

**Completion Date:** 12/3/2007 Denver CO

**Contract Amount:** \$642,753.50

**Owner's Contact:** Ms. Lynda Duke (303) 799-0979

**Lakewood Safety Center**

**Project PM** Kirt Courkamp

**Project Supt.** David Hotchkiss

- 2,100 sf Install Concrete Sealer (Hydrozo 100)
- 775 lf Joint & Cove Sealant (Isoflex 880GB / 881)
- 250 sf Concrete Slab on Grade Repair
- 100 lf Increase Cover at Wall Reinforcing

**Completion Date:** 2/11/2008 Lakewood CO

**Contract Amount:** \$61,875.00

**Owner's Contact:** Mr Rick Baldessari (303) 987-7809

**Quadrant Parking Structure**

**Project PM** Kirt Courkamp

**Project Supt.** David Hotchkiss

- 19,024 lf Precast T-T Sealant
- 7,500 lf Cove / Contraol Joint Sealant (Isoflex 880GB/881)
- 2,340 sf Epoxy Healer / Sealer (BASF EP-35)
- 480 lf Demo / Install Jeene Joint
- 456 lf Demo / Install Winged Exp. Joint (WB-ME 400)
- 254 sf Delaminated Concrete Floor Repair

**Completion Date:** 4/18/2008 Greenwood Villa CO

**Contract Amount:** \$355,981.00

**Owner's Contact:** Dacharie Luke (720) 489-8600

**Monoco Parking Garage Sealer - Phase II**

**Project PM** Kirt Courkamp

**Project Supt.** David Hotchkiss

- 65,000 sf Install Concrete Sealer (Hydrozo 100)

**Completion Date:** 6/1/2008 Greenwood Villa Colorado

**Contract Amount:** \$27,000.00

**Owner's Contact:** Andy Pickens (720) 624-0886

**Park Meadows Parking Garage Repairs**

**Project PM** Jim Spencer

**Project Supt.** Greg Ostertag

- 48,000 sf Install Concrete Sealer (Hydrozo 100)
- 43,500 sf Traffic Coating (Methacrylate)
- 10,400 lf Remove/Replace T-T Sealant (Isoflex 880GB/881)
- 1,600 lf Remove/Replace Cove Joint Sealant (Isoflex 881)
- 650 sf Partial Depth Concrete Repair
- 360 lf Remove/Replace Expansion Joints (WB-Me 400)
- 120 sf Beam Repairs
- 24 set Install Shear Transfer Devices

**Completion Date:** 8/22/2008 Lone Tree CO

**Contract Amount:** \$405,150.00

**Owner's Contact:** William Pollard (303) 792-2999

**1391 Speer Blvd. Parking Garage - Phase II**

**Project PM** Kirt Courkamp  
**Project Supt.** David Hotchkiss

**Completion Date:** 8/31/2008 Denver CO  
**Contract Amount:** \$581,680.00  
**Owner's Contact:** Lynda Duke (303) 799-0979

- 96,500 sf Install Concrete Sealer (Isoflex 618-100)
- 44,600 sf Traffic Coating (Conipur II)
- 6,600 lf Rout/Seal Cracks (Isoflex 880GB/881)
- 3,600 sf Ramp Curb & Topping Replacement
- 360 sf Partial Depth Concrete Repair
- 300 lf Replace Expansion Joint (Isoflex J40)

**Parking Structure Moisture Prot. Phase II**

**Project PM** Jim Spencer  
**Project Supt.** Kevin Kesinger

**Completion Date:** 10/31/2008 Denver Colorado  
**Contract Amount:** \$12,748,379.58  
**Owner's Contact:** Frank Palumbo (303) 342-2639

- 1,755,553 sf Concrete Sealer Application (Hydrozo 40/100)
- 139,554 lf Precast T Joint Sealant (Isoflex 880GB/881)
- 57,388 sf Floor Repair - Full Depth
- 35,709 lf Crack / Control Jnt Sealant R/R (Isoflex 880GB/881)
- 22,875 lf Cove Joint Sealant (Isoflex 881)
- 7,586 ea Stainless Shear Transfer Plates
- 3,557 sf Floor Repair - Shallow Depth
- 3,512 lf Supplemental Drain Piping
- 2,207 ea Grout Pocket Repairs
- 1,088 lf Winged Expansion Joint R/R (WB-ME 400)
- 755 ea Tee Stem Repairs
- 403 ea Replace Existing Drains
- 212 lf Armored Expansion Joint R/R (WB-EFJ 400)
- 89 ea Supplemental Floor Drains
- 5 ea Rotate / Brace Entry Bridge Beams

**LDS Hospital Repairs to Parking Structures**

**Project PM** Kirt Courkamp  
**Project Supt.** David Brown

**Completion Date:** 11/1/2008 Salt Lake City Utah  
**Contract Amount:** \$3,100,000.00  
**Owner's Contact:** Randy Beard - WRC (303) 694-6622

- 81,000 sf Traffic Coating (Sonoguard)
- 50,500 sf Traffic Coating (Re-Coat - Isoflex 750/760)
- 19,100 sf Concrete Sealer (Isoflex 618-50)
- 17,500 sf Partial Depth Concrete Repair
- 6,135 sf Full Depth Concrete Repair
- 2,500 sf Overhead/Vertical Repairs (Shotcrete)
- 50 ea Post Tension Repairs

**950 S. Cherry St. Parking Structure Repair**

**Project PM** Kirt Courkamp  
**Project Supt.** David Hotchkiss

**Completion Date:** 5/1/2009 Denver Colorado  
**Contract Amount:** \$606,568.39  
**Owner's Contact:** Mr. Gary Hickman (303) 759-5123

52,900 sf Urethane Traffic Coating (BASF-Conipur)  
16,846 sf Epoxy Leveling (BASF-EP/35)  
1,762 sf Remove/Replace Topping Slab  
524 lf R/R Expansion Joints (Watson Bowman ME Joint)  
111 ea Repair T-Flange Connections  
33 ea Install Load Transfer Devices  
23 lf Remove/Replace Trench Drain in Slab  
13 ea Tee Stem Repairs (Deep)  
1 ea Install Tee Support @ Column

**North Town Mall - Parking Structure Re. 2009**

**Project PM** Jim Spencer  
**Project Supt.** Greg Ostertag

**Completion Date:** 11/17/2009 Spokane Washington  
**Contract Amount:** \$459,761.43  
**Owner's Contact:** Mr. Robert Vander Li (509) 482-0209

18,711 lf Tee Flange Sealant (Lymtal Isoflex)  
17,779 lf Control Joint Sealant (Lymtal Isoflex)  
2,588 lf Cove Sealant (Lymtal Isoflex)  
2,570 sf Epoxy Broadcast Overlay (BASF EP-35)  
151 sf Floor Repair - Partial Depth  
124 sf Floor Repair - Full Depth  
75 lf Expansion Joint - Premold (Lymtal)  
24 lf Expansion Joint - Armored (Lymtal Durablock)

**Parking Structure Moisture Prot. Phase III**

**Project PM** Jim Spencer  
**Project Supt.** Kevin Kesinger

**Completion Date:** 11/24/2009 Denver Colorado  
**Contract Amount:** \$6,772,301.17  
**Owner's Contact:** Mr. Bill Shirk (303) 342-2606

835,588 sf Concrete Sealer Application (Hydrozo 40/100)  
68,139 lf Crack / Control Jnt Sealant R/R (Isoflex 880GB/881)  
56,518 lf Precast T Joint Sealant (Isoflex 880GB/881)  
29,259 lf Cove Joint Sealant (Isoflex 881)  
28,906 sf Floor Repair - Full Depth  
3,597 ea Stainless Shear Transfer Plates  
1,667 sf Curb Replacement  
1,587 lf Supplemental Drain Piping  
1,036 sf Floor Repair - Partial Depth  
779 ea Wall Repair - Partial Depth  
540 lf Winged Expansion Joint R/R (WB-ME 400)  
395 sf Tee Flange Repair - Full Depth  
191 ea Replace Existing Drains  
60 lf Armored Expansion Joint R/R (WB-EFJ 400)  
50 ea Supplemental Floor Drains  
47 ea Tee Stem Repair - Deep  
44 ea Tee Stem Repair - Partial Depth

**2nd Ave / Fillmore Parking Garage Repair - 2009**

**Project PM** Kirt Courkamp  
**Project Supt.** David Brown

**Completion Date:** 3/31/2010 Denver Colorado  
**Contract Amount:** \$650,284.20  
**Owner's Contact:** Mr. Bob Matucci (303) 917-7711

60,735 sf Epoxy Healer Sealer (BASF EP-35)  
37,280 sf Epoxy Overlay (BASF EP-35)  
29,354 sf Traffic Coating - Urethane (BASF Sonoguard)  
23,000 sf Install Concrete Sealer (BASF - Hydrozo 100)  
4,528 sf Floor Repair - Partial Depth, Deep  
426 sf Concrete Curb Replacement  
346 sf Floor Repair - Partial Depth Shallow  
294 lf Control Joint Sealant (Lymtal Isoflex 880/881)  
88 sf Repair Metal Pan Landing Planks  
24 ea Clean / Repair Drains  
22 ea Repair Metal Pan Stair Treads  
1 ls Fabricate / Install New Stair Railings

**Arvada Blunn Spillway Repairs**

**Project PM** Kirt Courkamp  
**Project Supt.** David Hotchkiss

**Completion Date:** 8/18/2010 Arvada Colorado  
**Contract Amount:** \$20,000.00  
**Owner's Contact:** Mr. Tim Hoos (720) 898-7640

70 sf Misc. Concrete Repairs (Vertical & Horizontal)  
10 gal Urethane Grout Injection of Cracks

**North Town Mall - Parking Structure Re. 2010**

**Project PM** Jim Spencer  
**Project Supt.** Kevin Kesinger

**Completion Date:** 8/30/2010 Spokane Washington  
**Contract Amount:** \$459,392.51  
**Owner's Contact:** Mr. Robert Vander Li (509) 482-0209

- 6,000 lf Tee Flange Sealant (Lymtal Isoflex)
- 5,500 sf Epoxy Broadcast Overlay (BASF EP-35)
- 4,500 lf Control Joint Sealant (Lymtal Isoflex)
- 2,200 lf Cove Sealant (Lymtal Isoflex)
- 475 sf Concrete Repair - Shallow (LMC)
- 466 lf Expansion Joint R/R (Watson Bowman ME-500)
- 76 ea Precast Stair Tread / Riser Replacement
- 38 lf Premold Expansion Joint (Lymtal)
- 20 sf Tee Flange Repair - Full Depth
- 18 sf Spandrel Wall Repair - Shallow
- 8 sf Hollow Core Plank Repair
- 4 ea Precast Stair Landing Replacement

**Red Lion Hotel Parking Garage Repair 2010**

**Project PM** Jim Spencer  
**Project Supt.** Jon Anderson

**Completion Date:** 9/15/2010 Aurora Colorado  
**Contract Amount:** \$358,075.00  
**Owner's Contact:** Mr. Randy Beard (W) (303) 694-6622

- 51,800 sf Concrete Sealer Application (Enviroseal 40)
- 9,100 lf Control Joint Sealant (Lymtal Isoflex)
- 8,200 sf Traffic Coating (Sonoguard)
- 5,610 sf Floor Repair - Shallow (LMC)
- 650 lf Drain Piping / Hangers
- 328 lf Expansion Joint w/ Wash R/R (Watson Bowman ME-300)
- 254 sf Floor Repair - Full Depth (LMC)
- 65 sf Floor Repair - SOG Walk
- 14 ea T-Stem Repair - Deep
- 7 ea Stair Tread Replacement
- 5 ea Supplemental Drains
- 2 lvl Traffic Marking Restripe

**Boulevard Mall Parking Structure Repair 2010**

**Project PM** Jim Spencer  
**Project Supt.** Mark Eckhoff

**Completion Date:** 10/15/2010 Las Vegas Nevada  
**Contract Amount:** \$116,884.10  
**Owner's Contact:** Mr Travis Harmon (702) 735-8268

- 500 lf Construction Joint Sealant (Sika 2C)
- 477 sf T-Flange Repair - Full Depth
- 84 sf Floor Repair - Shallow
- 80 ea Supplemental Shear Wall Connections
- 25 lf Epoxy Injection
- 10 sf Beam Repair - Shallow
- 7 ea Reweld Shear Wall Connections

**Terminal Parking Garage Column Repair**

Project PM Jim Spencer  
Project Supt. Jon Anderson

Completion Date: 12/15/2010 Denver Colorado  
Contract Amount: \$481,600.00  
Owner's Contact: Mr Gary Cook (303) 825-6211

143 ea Column to Floor Supplemental Shear Reinf. Repair

**17th Street Plaza Renovation - Phase I**

Project PM Jim Spencer  
Project Supt. Kevin Kesinger

Completion Date: 12/15/2010 Denver Colorado  
Contract Amount: \$705,505.03  
Owner's Contact: Mr Kurt Godes (303) 292-3861

14,468 sf R/R Hot Applied Waterproofing (Am. Hydrotech)  
13,688 sf Replace Plaza Concrete Slab - Acid Etch  
13,688 sf Demo Plaza Concrete Slab  
160 lf R/R Bronze Arch. Expansion Joint (Balco)  
5 ea R/R Plaza Drains

**NCHS Stadium Repairs**

Project PM Kirt Courkamp  
Project Supt. David Hotchkiss

Completion Date: 12/15/2010 Casper Wyoming  
Contract Amount: \$247,546.00  
Owner's Contact: Mr. Dennis Bay (307) 253-5317

1,942 lf Epoxy Injection  
445 sf Overhead Shotcrete Repair  
350 ea Replace Broken Seat Brackets

**17th Street Plaza Renovation - Phase II**

Project PM Jim Spencer  
Project Supt. David Brown

Completion Date: 8/31/2011 Denver CO  
Contract Amount: \$571,954.00  
Owner's Contact: Mr. Kurt Godes (303) 292-3861

14,000 sf Hot Applied Plaza Waterproofing (American Hydrotec)  
9,000 sf Removal / Relacement of Granite Pavers  
3,000 sf Acid Etch Topping Slab  
3,000 sf Removal & Replacement of Topping Slab

**2099 Welton St. Parking Garage Repair**

Project PM Kirt Courkamp  
Project Supt. David Brown

Completion Date: 9/22/2011 Denver CO  
Contract Amount: \$99,933.00  
Owner's Contact: Eric Wiengardt (303) 292-1999

22,100 sf Install Epoxy Surface Sealer (BASF Epoxeal GS)  
3,270 lf Replace T-T Sealant (Lymtal Isoflex)  
258 sf R/R Concrete Topping  
32 ea Replace Curb Stops  
4 ea Replace Door Frames

**Southwest Plaza Mall Parking Garage Repair**

Project PM Jim Spencer  
Project Supt. David Brown

Completion Date: 9/23/2011 Lakewood CO  
Contract Amount: \$260,000.00  
Owner's Contact: Mr. Tim Courson (303) 973-7062

22,000 sf Traffic Coating Installation (Isoflex 750 HL)  
2,700 sf Floor Repair - Partial Depth  
689 sf Floor Repair - Full Depth  
265 lf Masonry Tuckpointing  
28 ea Tee Connection Repairs

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## (2) KEY PERSONNEL INFORMATION FORM

Refer to IB-9 for a statement of the criteria to be evaluated with respect to key personnel requirements.

Identify and provide a resume and statement of qualifications for each of the following key personnel to be assigned to work for the Proposer under this Contract:

- Contractor's Project Manager: The Contractor shall employ and designate to the Deputy Manager, in writing, an overall coordinator, manager, and leader of project team.
- Job Superintendent: The Contractor shall employ and designate to the Deputy Manager, in writing, a competent Superintendent whose qualifications shall be acceptable to the Deputy Manager. The Superintendent shall be authorized to act on behalf of the Contractor in all matters related to the Work.
- Project Engineer: If the level of work requires, the Contractor shall employ and designate to the Deputy Manager, in writing, a competent project engineer whose qualifications shall be acceptable to the Deputy Manager.

\*\*\*See attached Key Personnel package following this section.





September 28, 2011

City and County of Denver  
Denver International Airport  
Depart of Aviation  
Airport Office Building  
8500 Pena Boulevard  
Denver, CO 80249

RE: On Call Services 2012-13 Terminal Roadway & Garage Repairs – Contract No. 201102006

The following are resumes for some of the key personnel John Rohrer Contracting Company (JRCC) would possibly staff the On Call Services 2012-13 Terminal Roadway & Garage Repairs – Contract No. 201102006 with if we would have the winning proposal.

Also, I have included some project listings with the superintendents and project managers that have been involved with them.

Kirt Courkamp – Branch Manager / Project Manager

Jim Spencer – Project Manager

David Brown – Field Superintendent  
Kevin Kesinger – Field Superintendent

Jon Anderson – Field Superintendent / Laborer Foreman  
Dave Hotchkiss – Field Superintendent / Laborer Foreman

Jim Pierce – General Field Superintendent

All of the personnel listed above have run and overseen several projects and have first hand experience working on DIA projects.



*Project Manager Summary Report*

<i>Project PM</i>	<i>Project Name</i>	<i>Project Supt.</i>	<i>Contract Amount</i>
<i>CompletionDate</i>			
<i>Jim Spencer</i>			
9/1/2002	DIA - Parking Structure Moisture Protection Ph. I	Jim Pierce	\$8,000,000.00
6/1/2003	3840 S. Wadsworth Parking Garage Repairs	Kevin Kesinger	\$160,350.00
11/1/2003	Denver World Trade Center	David Hotchkiss	\$256,511.00
1/1/2004	Regency Parking Garage Rehabilitation	Greg Ostertag	\$1,212,250.00
5/1/2005	Sacramento Parking Structures Repair (9 Garages)	Mark Eckhoff	\$2,570,881.00
7/1/2005	Town of Winter Park	David Hotchkiss	\$330,545.00
9/1/2005	Rose Medical Center New Parking Garage	David Hotchkiss	\$191,480.00
9/1/2005	Orchard Road Christian Center NE Entrance	Kevin Kesinger	\$49,725.00
9/1/2005	Denver Pavilions Parking Structure	Kevin Kesinger	\$220,188.00
10/1/2005	Denver Athletic Club	David Hotchkiss	\$173,268.00
3/5/2006	LA Dodger Stadium Seating Restoration	Kevin Kesinger	\$2,809,460.00
8/22/2008	Park Meadows Parking Garage Repairs	Greg Ostertag	\$405,150.00
10/31/2008	Parking Structure Moisture Prot. Phase II	Kevin Kesinger	\$12,748,379.58
11/17/2009	North Town Mall - Parking Structure Re. 2009	Greg Ostertag	\$459,761.43
11/24/2009	Parking Structure Moisture Prot. Phase III	Kevin Kesinger	\$6,772,301.17
8/30/2010	North Town Mall - Parking Structure Re. 2010	Kevin Kesinger	\$459,392.51
9/15/2010	Red Lion Hotel Parking Garage Repair 2010	Jon Anderson	\$358,075.00
10/15/2010	Boulevard Mall Parking Structure Repair 2010	Mark Eckhoff	\$116,884.10
12/15/2010	Terminal Parking Garage Column Repair	Jon Anderson	\$481,600.00
12/15/2010	17th Street Plaza Renovation - Phase I	Kevin Kesinger	\$705,505.03
8/31/2011	17th Street Plaza Renovation - Phase II	David Brown	\$571,954.00
9/23/2011	Southwest Plaza Mall Parking Garage Repair	David Brown	\$260,000.00
<i>Summary for Jim Spencer (22 detail records)</i>			
			<b>Summary</b> \$39,313,660.82

<i>Project PM</i>	<i>Project Name</i>	<i>Project Supt.</i>	<i>Contract Amount</i>
<i>CompletionDate</i>			
<i>Kirt Courkamp</i>			
3/1/1999	Regency Tower Apt. Garage Renovation	Randy Manis	\$364,315.00
9/1/1999	University of Nebraska - West Balcony Rehabilitati	Randy Manis	\$1,020,000.00
10/1/1999	LDS Visitor Parking Garage	Kevin Kesinger	\$864,000.00
6/1/2001	LAX Marriot Parking Garage Repair	Greg Ostertag	\$2,365,970.00
6/1/2001	Canyon Center Plaza Renovations	Kevin Kesinger	\$1,067,460.00
10/1/2001	17th Street Parking Garage Renovation	Greg Ostertag	\$362,473.00
6/1/2003	City Park Garage Rehabilitation	Greg Ostertag	\$1,086,380.00
9/1/2003	Pine Street Parking Ramp Repairs	Kevin Kesinger	\$452,909.00
10/1/2003	Spokane Int. Airport Garage Helix Repairs	Mark Eckhoff	\$929,584.00
4/1/2005	City Park Garage Rehabilitation - Phase II	Greg Ostertag	\$2,201,183.00
8/1/2005	Doubletree Hotel - Balcony Repairs	Rick Nolan	\$377,336.00
10/1/2005	Euclid & Regent Auto Park Structural Repairs	Kevin Kesinger	\$732,583.00
8/15/2006	One Denver Highlands	David Hotchkiss	\$365,117.49
5/2/2007	1735 Stout Parking Garage	David Hotchkiss	\$34,500.00
7/1/2007	Monoco Parking Garage Sealer	David Hotchkiss	\$25,000.00
12/3/2007	1391 Speer Blvd Parking Structure Repair	Mark Eckhoff	\$642,753.50
2/11/2008	Lakewood Safety Center	David Hotchkiss	\$61,875.00
4/18/2008	Quadrant Parking Structure	David Hotchkiss	\$355,981.00
6/1/2008	Monoco Parking Garage Sealer - Phase II	David Hotchkiss	\$27,000.00
8/31/2008	1391 Speer Blvd. Parking Garage - Phase II	David Hotchkiss	\$581,680.00
11/1/2008	LDS Hospital Repairs to Parking Structures	David Brown	\$3,100,000.00
5/1/2009	950 S. Cherry St. Parking Structure Repair	David Hotchkiss	\$606,568.39
3/31/2010	2nd Ave / Fillmore Parking Garage Repair - 2009	David Brown	\$650,284.20
8/18/2010	Arvada Blunn Spillway Repairs	David Hotchkiss	\$20,000.00
12/15/2010	NCHS Stadium Repairs	David Hotchkiss	\$247,546.00
9/22/2011	2099 Welton St. Parking Garage Repair	David Brown	\$99,933.00
<i>Summary for Kirt Courkamp (26 detail records)</i>			
			<b>Summary</b> \$18,642,431.58
<b>Grand Total</b>			<b>\$57,956,092.40</b>

## James E. Spencer, EIT

5712 South Benton Way  
Littleton, Colorado 80239

Home: (303) 933-2909  
Email: [jspencer@jrcolorado.net](mailto:jspencer@jrcolorado.net)

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### Professional Experience

**John Rohrer Contracting Co. Inc.**  
Project Manager: Denver, Colorado

July, 2000 to Present

- **Project Scheduling.** Sole development of CPM. Perform weekly and monthly updates to determine critical task activities. Ensured project completion within specified time.
- **Contract Administration.** Submit change requests, negotiate change orders, and insure that work is being performed within the guidelines of the specifications.
- **Billing Administration.** Process monthly Applications for Payment, update Schedule of Values, and submit monthly (CAD) as-builts.
- **Submittals.** Process submittals required to perform work.
- **Procurement.** Daily order placement / tracking of required materials and equipment.
- **Contract Close-Out.**

**Toombs & Associates Engineering Inc.**  
Associate Engineer: Denver, Colorado

July, 1998 to July, 2000

Building System Commissioning on multiple projects throughout the U.S. Duties included:

- **Analysis of design.** Assist in development of Design Review and Design Intent of mechanical and electrical systems.
- **Review of Controls Design.** Developed Point-to-Point Check Sheets.
- **Development of Functional Test Procedures.**
- **Implementation of testing using Functional Test Procedures.**
- **Scheduling and overseeing client training.**
- **Development of Preventative Maintenance Database.**
- **Controls System Design**
- **Directed Subcontractor activities.**

**Clay-Greene Inc.**  
Intern Engineer: Birmingham, Alabama

July, 1997 to July, 1998

Design Engineer for manufacturer of prefabricated booster pump stations, sewage lift stations, and fire protection pump systems for municipalities. Duties included:

- **Analysis of specifications.** Determination of required equipment to meet design criteria.
- **Review of Controls Design.** Offered improvements to original design.
- **Controls design.**
- **Booster Pump, Vertical Turbine, & Sewage Lift Station design.**
- **Submittal review.**
- **Electrical Design.**
- **Directed Subcontractor Activities.**
- **Project Scheduling**
- **Developed Economical Manufacturing Methods / Quality Control**

## **Education**

**University of Kansas**  
**B.S. Architectural Engineering (5 Year Degree Program)**  
**Emphasis: Construction Management**

**1992 to 1997**

### **Major Courses Taken:**

- **Project Scheduling (Primavera P3)**
- **Construction Estimating (Timberline)**
- **Building Mechanical Systems**
- **Power Systems**
- **Thermodynamics**
- **Fluids Analysis**
- **Steel Design**

## **Military**

**United States Army -- Fort Riley, Kansas**  
**Position: Infantry -- Battalion Sniper**  
**Rank Achieved: Sergeant, E-5**

**1987 to 1991**

### **Awards:**

- **Bronze Star Medal**
- **Army Achievement Medal (2)**
- **Army Commendation Medal (2)**
- **Expert Infantry**
- **Combat Infantry**



*Superintendent Summary Report*

<i>Project Supt</i>	<i>Project Name</i>	<i>Project PM</i>	<i>Contract Amount</i>
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*David Brown*

11/1/2008	LDS Hospital Repairs to Parking Structures	Kirt Courkamp	\$3,100,000.00
3/31/2010	2nd Ave / Fillmore Parking Garage Repair - 2009	Kirt Courkamp	\$650,284.20
8/31/2011	17th Street Plaza Renovation - Phase II	Jim Spencer	\$571,954.00
9/22/2011	2099 Welton St. Parking Garage Repair	Kirt Courkamp	\$99,933.00
9/23/2011	Southwest Plaza Mall Parking Garage Repair	Jim Spencer	\$260,000.00

*Summary for David Brown (5 detail records)*

**Summary** \$4,682,171.20

*David Hotchkiss*

5/1/2000	Columbia Weseley Medical Center - Rutan Garage	Brandon McMullen	\$146,000.00
11/1/2003	Denver World Trade Center	Jim Spencer	\$256,511.00
7/1/2005	Town of Winter Park	Jim Spencer	\$330,545.00
9/1/2005	Rose Medical Center New Parking Garage	Jim Spencer	\$191,480.00
10/1/2005	Denver Athletic Club	Jim Spencer	\$173,268.00
8/15/2006	One Denver Highlands	Kirt Courkamp	\$365,117.49
5/2/2007	1735 Stout Parking Garage	Kirt Courkamp	\$34,500.00
7/1/2007	Monoco Parking Garage Sealer	Kirt Courkamp	\$25,000.00
2/11/2008	Lakewood Safety Center	Kirt Courkamp	\$61,875.00
4/18/2008	Quadrant Parking Structure	Kirt Courkamp	\$355,981.00
6/1/2008	Monoco Parking Garage Sealer - Phase II	Kirt Courkamp	\$27,000.00
8/31/2008	1391 Speer Blvd. Parking Garage - Phase II	Kirt Courkamp	\$581,680.00
5/1/2009	950 S. Cherry St. Parking Structure Repair	Kirt Courkamp	\$606,568.39
8/18/2010	Arvada Blunn Spillway Repairs	Kirt Courkamp	\$20,000.00
12/15/2010	NCHS Stadium Repairs	Kirt Courkamp	\$247,546.00

*Summary for David Hotchkiss (15 detail records)*

**Summary** \$3,423,071.88

<i>Project Supt</i>	<i>Project Name</i>	<i>Project PM</i>	<i>Contract Amount</i>
<i>CompletionDate</i>			
<i>Jim Pierce</i>			
10/1/1999	Country Club Plaza Parking Garages Restoration	Brandon McMullen	\$366,500.00
1/1/2001	Fairway Corporate Center Garage Overlay	Brandon McMullen	\$306,100.00
9/1/2002	DIA - Parking Structure Moisture Protection Ph. I	Jim Spencer	\$8,000,000.00
12/1/2002	Zewalk Residence Garage Slab Replacement	Brandon McMullen	\$26,000.00
1/1/2003	1300 E. 104th St. Parking Garage Repairs	Brandon McMullen	\$25,000.00
8/1/2005	Water Treatment Plant - Fume / Basin Rehab.	Curtis Barkley	\$763,887.00
<i>Summary for Jim Pierce (6 detail records)</i>			
			<b>Summary</b> \$9,487,487.00
<i>Jon Anderson</i>			
9/15/2010	Red Lion Hotel Parking Garage Repair 2010	Jim Spencer	\$358,075.00
12/15/2010	Terminal Parking Garage Column Repair	Jim Spencer	\$481,600.00
<i>Summary for Jon Anderson (2 detail records)</i>			
			<b>Summary</b> \$839,675.00
<i>Kevin Kesinger</i>			
2/1/1999	Westshore Mall Parking Structure Repairs	Brandon McMullen	\$1,504,340.00
10/1/1999	LDS Visitor Parking Garage	Kirt Courkamp	\$864,000.00
6/1/2001	Canyon Center Plaza Renovations	Kirt Courkamp	\$1,067,460.00
9/1/2001	GSA Federal Building Parking Structure Repairs	Troy Fuqua	\$85,000.00
11/1/2002	Alameda Tower Plaza Renovation	Troy Fuqua	\$611,000.00
11/1/2002	Two Brush Creek Parking Garage Repairs	Troy Fuqua	\$71,000.00
6/1/2003	3840 S. Wadsworth Parking Garage Repairs	Jim Spencer	\$160,350.00
9/1/2003	Pine Street Parking Ramp Repairs	Kirt Courkamp	\$452,909.00
1/1/2004	Garden Avenue Garage and Municipal Garage Repairs	Brandon McMullen	\$395,000.00
5/1/2005	Westin Crown Center Pool Deck Plaza	Brandon McMullen	\$400,849.00
9/1/2005	Denver Pavilions Parking Structure	Jim Spencer	\$220,188.00
9/1/2005	Orchard Road Christian Center NE Entrance	Jim Spencer	\$49,725.00
10/1/2005	Euclid & Regent Auto Park Structural Repairs	Kirt Courkamp	\$732,583.00
3/5/2006	LA Dodger Stadium Seating Restoration	Jim Spencer	\$2,809,460.00
10/31/2008	Parking Structure Moisture Prot. Phase II	Jim Spencer	\$12,748,379.58
11/24/2009	Parking Structure Moisture Prot. Phase III	Jim Spencer	\$6,772,301.17
8/30/2010	North Town Mall - Parking Structure Re. 2010	Jim Spencer	\$459,392.51
12/15/2010	17th Street Plaza Renovation - Phase I	Jim Spencer	\$705,505.03
<i>Summary for Kevin Kesinger (18 detail records)</i>			
			<b>Summary</b> \$30,109,442.29

<i>Project Supt</i>	<i>Project Name</i>	<i>Project PM</i>	<i>Contract Amount</i>
<i>CompletionDate</i>			
<i>Grand Total</i>			\$48,541,847.37



**Jim Perce  
General Superintendent  
Kansas City, KS**

**Work Experience:**

**1971 to Present**

**John Rohrer Contracting Company, Inc.**

**Parking Garage Repairs:**

**Chipping, placing Latex Overlay Concrete and Guniting Repairs; Soffit repairs and Overlay; Bridge Deck Repairs and Barrier Walls; Coatings, epoxy and overhead repairs; Post-Tension Repairs; Waterproofing Repairs; Guniting Work, Beam Repairs**

**Conventional Concrete Floors and Superflat Floors; Concrete Flatwork and Concrete Paving**

**Supervising all field personnel throughout the United States from 5,000 SF to over 1 Million SF per project**

**Safety:**

**Safety Inspection jobs on a daily basis.**

**Work together with Travelers Insurance Safety Personnel**

**Train all John Rohrer Contracting Field personnel**

**Education:**

**1971-1973 - Kansas City, Kansas Community College (45hours)**

**2010 Resumed education and still taking classes**

**Employer:**

**John Rohrer Contracting Company, Inc.**

**1971-1972 Laborer**

**1973-1981 Labor Foreman**

**1981-2002 Superintendent**

**2002-Present General Superintendent**

DAVID BROWN  
SUPERINTENDENT  
1721 SOUTH 17<sup>TH</sup> STREET  
ST. JOSEPH, MO 64503

Work Experience:

**1996 to Present John Rohrer Contracting Company, Inc.**

**Superintendent:**

**Houston Steak House Garage, Kansas City, MO  
Overhead full partial depth repairs; Latex Modified Concrete Overlay.**

**Crown Center Parking Garage, Kansas City, MO  
Full and partial depth repairs.**

**Parking Garage Repairs, Salt Lake City  
Full and partial depth repairs.  
Post tension repairs (certified in Post Tension)  
Epoxy overlay and coated decks and carbon fiber column wraps  
Expansion joint replacements**

**Parking Garage Repairs, Breckenridge, CO  
Latex Concrete Overlay**

**Cherry Creek Parking Garage Repairs, Denver, CO  
Full and partial depth patching with latex modified concrete overlay  
Carbon fiber structural in lays, epoxy overlay  
Sonneborne coatings, caulking and overhead repairs  
Post Tension repairs**

**Denver International Airport, Denver, CO  
Full and partial depth latex repairs in security area  
Caulking and Sonneborne coatings  
Precast repairs and stem repairs**

**Cherry Creek Parking Garage Repairs, Denver, CO  
Stair Repairs  
Precast and metal work with epoxy paint and sealers**

**17<sup>th</sup> Street Parking Garage, Denver, CO  
Marble removal, waterproofing removal and replace with Hydrotech  
Decorative concrete curb and walk replacement, caulking and sealing**

**Planter waterproofing removal and replacement**

**Southwest Plaza Mall, Littleton, CO**

Full and partial depth parching overhead and top side connection repair and  
Lynthal coating and caulking  
Brick and tuck-pointing

**2099 Welton Parking Garage, Denver, CO**

Partial depth repairs  
Steel and guard railing repair, epoxy overlay caulking  
Drains and door replacement

**Experience in Shrinkage Compensation Floors w/Monolithic Trap Rock; Superflat  
Floors; Conventional Floors; Convention Topping; Pavi8ng**

**Certifications:**

Shot-crete and Post-Tension repairs  
Concrete finisher and flat work superflat concrete floors  
30 hours OSHA  
Certified Forklift competent person  
Certified in Excavation, power nail gun, coatings, respirator training

**Education:**

1984-1988 Benton High School, St. Joseph, MO  
1989-1990 Missouri State Western College (Computer Tech)  
+ 1994-1995

**30 Hr. OSHA ACI Certified, CPR & First Aid Certified**

**Military Status: Honorable Discharge (1996)**

**Employer:**

John Rohrer Contracting Company, Inc., 2820 Roe Lane, Bldg. S, Kansas City, KS  
1996-1997 Cement Finisher  
1997-1999 Cement Finisher Foreman  
1999-Present Superintendent

**Dave Hotchkiss**  
**4849 Foxtail Drive**  
**Castle Rock, CO 80104**

**Work Experience**

November of 96 to Present

**John Rohrer Contracting Company, Inc.**, Denver, CO - Field Superintendent for new branch office for concrete Restoration Division in Denver and surrounding states. Coordinate field operations for contractor specializing in repair, restoration and moisture protection of concrete structures such as; plazas, parking garages, high rises and stadiums.

March of 95' to November of 96'

**Western Waterproofing Co. Inc.**, Denver, CO - A member of the Western Group, St. Louis, MO. - Foreman - Specialized in concrete restoration and moisture protection projects. Duties included project mobilization set-up and execution of various projects. Oversaw field crew assigned to project and all aspects of coordination and completion.

September of 93' to March of 95'

**Harry S. Peterson Co. Inc.**, Denver, CO - A Division of Master Builders Technologies Contracting Services, (MBTCS) Cleveland, OH. - Field Superintendent - Oversaw all daily operations of field crew. Responsible for training and development of field personnel. Specialized in the installation of moisture protection systems for concrete structures. In March of 95' the Western Group acquired Harry S. Peterson Co. from MBTCS. As part of this acquisition, the Denver branch of Western Waterproofing and the Denver branch of Harry S. Peterson merged to form one office, operating as Western Waterproofing in the Denver area.

August of 85' to September of 93'

**Harry S. Peterson Co. Inc.**, Houston, TX - A Division of Master Builders Technologies Contracting Services, (MBTCS) Cleveland, OH. - Laborer / Foreman - Started as laborer and worked up to Project Foreman. Harry S. Peterson Company originally developed and manufactured the Iso-Flex line of waterproofing products; including coatings, expansion joints, sealers and sealants. The Harry S. Peterson Company was one the first firms to develop and market moisture protection systems for precast parking structures.

**Repair and Restoration Experience**

Concrete Restoration - Cut and Patch, Overhead Structural Repairs  
Caulking and Sealants - Parking Structures, High Rise Buildings, Plazas, Slabs  
Injection - Epoxy Injection, Urethane Injection Resin  
Expansion Joints - Premolded Systems, Wabo Crete / Watson Bowman, Erie Metals, Jeene Joints  
Coating - Urethane and Epoxy Traffic Coating Systems, Below Grade Coating, Vertical / Architectural Coatings, Warehouse and Industrial Floor Coating Systems, Clear Penetrating Sealers.  
Rigging / Swing Stage - Vertical Concrete Repairs, Balcony Restoration and Moisture Protection, Silo Repairs

**References**

Project and professional references available on request

# Jon Anderson

21352 E. Williamette Pl.  
Centennial, CO 80015

715.222.5104  
[jonny26hi@hotmail.com](mailto:jonny26hi@hotmail.com)

## OBJECTIVE

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To find employment with a stable company that offers opportunity for advancement in the Rocky Mountain region.

## EDUCATION

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HAZWOPER Supervisor Training.	Honolulu, HI	September 2006
HAZWOPER Training	Honolulu, HI	September 2006
ACI/ASA Nozzleman Certification	Fridley, MN	November 2000
CPR/First Aid Certification	Honolulu, HI	February 2007

## EMPLOYMENT

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**Abhe & Svoboda Inc. Wastewater Project** Lahaina, HI **May 2007-June 2007**  
*Project Superintendent*

- Successfully managed the public contract project from start to finish.
- Concrete repair on a Wastewater Reclamation Facility.
- Site Safety Officer.

**Abhe & Svoboda Inc. Pier II Project** Honolulu, HI **April 2006-April 2007**  
*Project Superintendent*

- Successfully managed the 4.6 million dollar Government project from start to finish.
- Commanded a crew of at least 20 employees.
- Maintained a positive working relationship with State Representatives.
- Worked directly with Engineers and Inspectors.
- Ordered all necessary materials and tools in a cost effective manner.
- Site Safety Officer.
- Repaired 12,000 sqft of vertical spall using shotcrete placement method.

**Abhe & Svoboda Inc. Opaeha Project** Haleiwa, HI **Nov 2006-Jan 2007**  
*Project Superintendent*

- Successfully managed the \$420,000 private contract project from start to finish.
- Site Safety Officer.
- Commanded a crew of 5 employees.
- Ordered all necessary materials and tools in a cost effective manner.

# Jon Anderson

21352 E. Williamette Pl.  
Centennial, CO 80015

715.222.5104  
[jonny26hi@hotmail.com](mailto:jonny26hi@hotmail.com)

## EMPLOYMENT CONTINUED

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**Abhe & Svoboda Inc. Kalanihunia Project**    Kalanihunia, HI    **Sept 2004-March 2006**  
*Project Superintendent*

- Successfully managed the 4.8 million dollar Government project from start to finish.
- Site Safety Officer.
- Commanded a crew of at least 20 employees.
- Ordered all necessary materials and tools in a cost effective manner.
- Hired all Sub-Contractors
- Accurately performed all necessary material cost and quantity estimates.

**Graham Construction Inc.**    New Richmond, WI    **Sept 2001-Sept 2004**  
*Labor Foreman*  
*Shotcrete Nozzleman*  
*Cement Mason*

- Successfully operated numerous shotcrete projects which consisted of a variety of unique situations (soil nail, dam work, silo repair, tunnels, tanks, pools, homes, and water towers).
- Shaped and finished all shotcrete work accordingly.
- Completed projects using a variety of gunite machines such as: Meyco piccola, Allentown, Reed, and the large volume Alliva III.
- Directly involved in dry shotcrete material testing for Spec mix, in the field and in a controlled environment.

**Graham Construction Inc.**    New Richmond, WI    **Aug 1998-Sept 2001**  
*Nozzleman*  
*Cement Mason*  
*Laborer*

- Operated and familiarized myself with many manlifts, fork trucks, skidsteers, and trackhoe.
- Erected formwork and steelwork
- Operated power trowels and power screeds.
- Poured slabs, walls, curbs, and gutters.
- Worked with scaffolding and swing-stages, floating scaffold, or "BEECHE" scaffold.
- Laid block, brick, and ceramic block.

Professional reference contact information

James Svoboda (vice president ASI)

Dave Graham (project manager ASI)

Office: (808) 682-4833

Cell: (612) 240-7428

Fax: (808) 682-0780

**KEVIN LEE KESINGER**  
541 Brentwood Drive  
Lawrence, KS 66049

## WORK HISTORY

- 1996-Present     John Rohrer Contracting Company, Kansas City, KS  
Labor Foreman; Field Superintendent for Concrete Restoration Division in Kansas City. Coordinate field operations for contractor specializing in repair, restoration and moisture protection of concrete structures such as plazas and parking garages.
- 1979-1996        Hercules, Incorporated, DeSoto, Kansas  
(Sunflower Army Ammunitions Plant)  
Shift Supervisor
- 1977-1979        John Rohrer Contracting Company, Kansas City, KS  
General Laborer
- 1976-1977        Ryle Construction Company, Kansas City, KS  
General Laborer; installation of telephone cable, conduit and manholes; bury cable.
- 1976-1976        John Rohrer Contracting Company, Inc. Kansas City, KS  
General Laborer

## REPAIR AND RESTORATION EXPERIENCE

### Concrete Restoration

Demolition and patch replacement, vertical and overhead structural repairs (i.e. hand patching and gunnite), post-tension cable repair, precast bearing pad and slide bearing removal and replacement, latex modified concrete patching, sidewalk removal and replacement (i.e. handicapped accessibility), supplemental drainage for parking structures.

### Caulking and Sealants

Parking structures, plazas and slabs.



## **Injection**

**Epoxy**

## **Expansion Joints**

**Watson Bowman/Wabo Crete Jeene Joint, premolded expansion joint systems, Silicone (i.e. Dow Corning).**

## **Coatings**

**Urethane traffic coatings (i.e. Iso-flex) Neoguard, Carlisle, Epoxy High Built Traffic coatings (i.e. Eucopoxy Tufcoat HB), Subgrade water proof system (i.e. Sonneborn, Hydrotech)**

### (3) QUALITY CONTROL PLANS FORM

Contract No. 201102006

(Use only this form)

Refer to IB-9 for a statement of the criteria to be evaluated with respect to key personnel requirements.

This contract is unique in the fact that continued use of the contract is dependent upon the contractor's ability to provide high quality construction at a reasonable cost while providing compliance with the specifications and with requirements to maintain customer access and use of the terminal and terminal roadway areas. It is expected that high quality construction will be accomplished with minimal field oversight on the part of the City and County of Denver. Success for both the City and County of Denver and the contractor will be defined by the contractor's ability to manage the quality of the work, the schedule of the work, and the interface with all of our customers and users of the facility and compliance with adjustments in work arrangements as needed by DIA. Given the above parameters, address in detail the following subjects.

Describe how you will assure that only high quality work is provided under this contract:

It is John Rohrer Contracting Company's (JRCC) intent to staff the project with key personnel that have first hand experience and have provided quality work on past DIA projects. To help insure the highest quality of work is provided we will adhere to the project plans and specifications. Any changes that might fall outside of the project plans and specifications and might be viewed as a compromise in quality will be reviewed and approved with DIA's Project Manger prior to proceeding. Also, all major work items will have an appropriate Pre-work Meeting in which we will discuss the correct procedures / installations; Review work item specific quality checks and appropriate testing if required; Mock-ups will be provided if necessary and be available as a reference.

Regarding Products - There are two manufacturers listed for the Expansion Joint Systems; it is JRCC intent to provide the specified Lyntal Products for the Expansion Joint Systems and anywhere else the Lyntal Products are applicable. We have had great success installing the Lyntal Products on past DIA projects and to date have not had any significant warranty claims.

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during the relocation process. We have typically made every effort to contact the owner within 24 hours of notification of the claim and have some type of resolution started if in fact we are the responsible party. Making this early as practical contact tends to reduce the claim and fosters the spirit of understanding and satisfaction with how the claim is handled. Also, on past projects we have been contacted after hours and made it a policy to respond immediately.

New Task Orders would be handled with the same urgency. This would include the pricing of a new Task Order as well as the execution of an approved new Task Order.

**Describe how you will assure that the price proposal for each task order is reasonable before it is submitted to the City and County of Denver for consideration:**

John Rohrer Contracting Company (JRCC) will provide multiple quotes from vendors where applicable for DIA to review in pricing new task orders that are issued over the course of the project. We will provide labor estimates for your review and will invoice for the new task order per the proposed labor and mark-up rates. No work will be executed prior to the review and approval of the task order by the DIA Project Manager.

Also, it should be noted that due to our extensive experience with the types of repairs / details and the existing DIA work environment for this proposal; we are providing fair and accurate pricing based on the unique and difficult conditions that this project presents.

John Rohrer Contracting Co. is confident that we can accomplish all of the work outlined in Task Order #1 for the pricing we have submitted as part of this proposal.

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**Demonstrate that you have the experience and capability to obtain outside resources, to successfully manage subcontractors, and to know what constitutes high quality work:**

John Rohrer Contracting Company (JRCC) does not foresee the need to

acquire outside resources to assist in managing the subcontractors we intend to use on this project. JRCC intends to self-perform approximately 75% of the value of work items on the contract. We have based our proposal on utilizing only four subcontractors for the remaining 25% of work. Three of the four subcontractors we intend to use have first hand experience in working on DIA projects and all three of them have completed their past projects with the highest of quality. In the unlikely event that we need to hire additional resources to manage our subcontractors we will discuss the appropriate actions with the DIA Project Manager prior to implementing.

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**Demonstrate that you have the capability to manage multiple sub-contractors working at various locations and on multiple shifts, schedules or tasks. Describe the actions you will take to ensure that subcontracted work is completed in a timely fashion and with a high quality of work.**

John Rohrer Contracting Company (JRCC) does not anticipate problems

managing multiple subcontractors at various locations and on multiple shifts. This proposal and its stipulated task is based on a single night shift and includes only 4 subcontractors performing 25% of the work. Should several tasks with multiple shifts at various locations be issued; JRCC has the internal staffing and resources to complete the projects. In the unlikely event that this occurs it would be JRCC's intent to provide supplemental field superintendents / foreman as necessary to oversee that work is completed on schedule and in the high quality manner that DIA expects.

## (4) SCHEDULE OF PRICES AND QUANTITIES PAY ITEMS

The Tasks for this RFP shall be priced based on the unit price costs and quantities for the various tasks. Task #1 is described in the Project Specifications and Drawings that are included with this RFP. The proposer/contractor shall provide firm proposal pricing for this Task #1 project. This firm pricing will be used as a portion of the evaluation for the proposals provided.

The pricing for future tasks will be guided by use of the baseline for costs as established in Task #1.

### (4A) SCHEDULE OF PRICES AND QUANTITIES FOR TASK 1

Proposer/Contractor shall complete the following Schedule of Values for the Task #1 work:

**EACH WORK ITEM PRICE WHETHER A LUMP SUM OR UNIT PRICE SHALL INCLUDE ALL COSTS ASSOCIATED WITH THE ITEM INCLUDING BUT NOT LIMITED TO; GENERAL CONDITIONS, SPECIAL CONDITIONS, TECHNICAL SPECIFICATIONS DIVISION 1, ALL OTHER RELATED TECHNICAL SPECIFICATION REQUIREMENTS AND ALL MARKUPS, OVERHEAD AND PROFIT. ANY ACTIVITY DONE FOR THE CONVENIENCE OF THE CONTRACTOR TO EXECUTE A LUMP SUM ITEM SHALL BE INCLUDED IN THE LUMP SUM AMOUNT AND SHALL NOT BE PART OF THE UNIT PRICE QUANTITIES.**

Description of Abbreviations:

LF = Lineal Feet

EA = Each

SF = Square Feet

LS = Lump Sum

WORK ITEM	DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	TOTAL COST
<b>1.00</b>	<b>GENERAL REQUIREMENTS</b>				
1.10	Mobilization	LS	1	399,689.00	\$399,689.00
1.20	Concrete Formwork			Incidental	
1.30	Concrete Shores and Reshores			Incidental	

1.40	Concrete Reinforcement	Incidental			
1.50	Temporary Signage	LS	1	25,000.00	\$ 25,000.00
1.60	Work Sequence and Constraints	Incidental			
1.70	Vehicle Relocation	EA	50	147.00	\$ 7,350.00
1.80	Traffic Control in Weeks	<del>EA</del> <sup>ALW</sup>	<del>36</del> <sup>1</sup>	260,000.00	\$260,000.00
1.90	General Construction Allowance - Owner controlled	LS	1	300,000.00	\$ 300,000.00
<b>2.00</b>	<b>FLOOR SURFACE PREPARATION</b>				
2.10	Floor Preparation - Scarification	Incidental			
<b>3.00</b>	<b>CONCRETE FLOOR REPAIR</b>				
3.10	Floor Repair - Partial Depth / Shallow	SF	200	79.00	\$ 15,800.00
3.40	Floor Repair - Curbs Demo/Replace	SF	60	106.00	\$ 6,360.00
3.50	Floor Repair - Partial Depth/ Deep	SF	600	90.00	\$ 54,000.00
3.60	Floor Repair - Full Depth Level 5 & 6	SF	650	154.00	\$ 100,100.00
3.70	Floor Repair - Full Depth Level 4	SF	100	171.00	17,100.00
3.80	Floor Repair - Full Depth	SF	160	180.00	28,800.00
<b>4.00</b>	<b>CONCRETE CEILING REPAIR</b>				
4.10	Ceiling Repair - Partial Depth	SF	10	415.00	\$ 4,150.00
<b>5.00</b>	<b>PRECAST BEAM REPAIR</b>				
5.10	Beam Repairs - Partial Depth	SF	10	415.00	\$ 4,150.00
<b>6.00</b>	<b>PRECAST COLUMN REPAIR</b>				
6.10	Column Repair - Partial Depth	SF	16	415.00	\$ 6,640.00
6.20	Column Repair - Column Splice Grout	EA	12	461.00	\$ 5,532.00

6.30	Column Repair - Corbel	EA	2	4,752.00	\$ 9,504.00
<b>7.00</b>	<b>CONCRETE WALL REPAIR</b>				
7.10	Wall Repair - Grout Pocket	EA	152	119.00	\$ 18,088.00
<b>8.00</b>	<b>PRECAST TEE BEAM REPAIR</b>				
8.10	Tee Stem Repair - Partial Depth/Shallow	EA	2	1,715.00	\$ 3,430.00
8.20	Tee Stem Repair - Partial Depth/Deep	EA	2	3,174.00	\$ 6,348.00
<b>9.00</b>	<b>EXPANSION JOINT REPAIR</b>				
9.10	Expansion Joint Preparation - New Blockout	LF	240	116.00	\$ 27,840.00
9.20	Expansion Joint Preparation - New Wash with Blockout	LF	850	625.00	\$531,250.00
9.30	Expansion Joint Preparation - Sidewalk/Curb	LF	335	364.00	\$121,940.00
9.40	Expansion Joint Preparation - at Jersey Barrier	EA	2	5,319.00	\$ 10,638.00
<b>10.00</b>	<b>EXPANSION JOINT REPAIR AND REPLACEMENT</b>				
10.30	Expansion Joint - Compression at Canopy Bases	LF	45	167.00	\$ 7,515.00
10.40	Expansion Joints - Heavy Duty Roadway	LF	1,205	419.00	\$ 504,895.00
10.50	Expansion Joint - Bridge Compression Seal	LF	240	176.00	\$ 42,240.00
10.60	Expansion Joint - at Stairwell	LF	36	287.00	\$ 10,332.00
10.70	Expansion Joint - Metal Cover Plate (Seismic)	LF	335	397.00	\$ 132,995.00
10.80	Expansion Joint - Vertical Compression Seals	LF	72	137.00	\$ 9,864.00
<b>11.00</b>	<b>CRACK AND JOINT REPAIR</b>				
11.10	Seal Cracks and Joints	LF	6,000	8.90	\$ 53,400.00
11.20	Control Joint Sealant	LF	23,500	7.70	\$ 180,950.00
11.30	Vertical Joint Sealant	LF	900	24.00	\$ 21,600.00



11.50	Epoxy Injection-Column Cracks	LF	1,000	56.00	\$ 56,000.00
11.60	Chemical Grout Injection	LF	12,700	51.00	\$ 647,700.00
11.70	Cove Sealant	LF	18,000	8.10	\$ 145,800.00
<b>13.00</b>	<b>PROTECTIVE HEALER / SEALER</b>				
13.10	Concrete Healer /Sealer Floors	SF	121,000	3.80	\$459,800.00
<b>15.00</b>	<b>PROTECTIVE SEALER</b>				
15.10	Concrete Sealer - 100% Precast Floors	SF	245,000	.70	\$171,500.00
<b>16.00</b>	<b>TRAFFIC TOPPING</b>				
16.10	Traffic Topping - Vehicular	SF	12,000	6.10	\$ 73,200.00
16.20	Traffic Topping - Curb	LF	12,700	7.60	\$ 96,520.00
<b>25.00</b>	<b>MECHANICAL - DRAINAGE</b>				
25.20	Mechanical - Supplemental Floor Drain	EA	27	3,127.00	\$ 84,429.00
25.30	Mechanical - Pipes and Hangers	LF	1,350	123.00	\$ 166,050.00
25.30 a	Mechanical - Pipe Fittings 4" Elbow	EA	6	167.00	\$ 1002.00
25.50	Mechanical - Replace Existing Drains	EA	155	3,127.00	\$ 484,685.00
25.60	Mechanical- Drain Covers at Sidewalk	EA	14	892.00	\$ 12,488.00
25.70	Mechanical - Paint 4" Pipe	LF	1,500	40.00	\$ 60,000.00
25.80	Mechanical - Paint 5"- 6" Pipe	LF	800	50.00	\$ 40,000.00
<b>43.00</b>	<b>ARCHITECTURAL REPAIRS</b>				
43.60	Architectural Repairs - Clean Atrium Spandrels	EA	2	31,785.00	\$ 63,570.00
<b>45.00</b>	<b>PAINTING</b>				
45.10	Traffic Markings - Roadway Areas	EA	9	3,560.00	\$ 32,040.00

45.10A	Traffic Markings- Baggage Areas	EA	2	3,110.00	\$ 6,220.00
45.40	Paint -Inverted Tee Beams	EA	12	9,785.00	\$ 117,420.00
45.50	Paint -Columns Elastomeric	EA	24	1,060.00	\$ 25,440.00
45.60	Sandblast & Epoxy Paint – Column Connections	EA	20	266.00	\$ 5,320.00
45.70	Paint Canopy Bases	EA	24	195.00	\$ 4,680.00
45.80	Paint Canopy Column Bases	EA	27	195.00	\$ 5,265.00

**TOTAL TASK 1 AMOUNT:**

The **TOTAL CONTRACT TASK 1 AMOUNT** is the contractor's sum for the Project Mobilization, Planning & Administrative Preparation, for the work items listed above, in section 4A, Unit Prices and general conditions For all work described in the bid documents. Also included are all required insurance coverage, applicable taxes, permits, DIA parking access fees, Contractor's mark-up, small tools, consumables, overhead and profit.

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Five Million, Six Hundred Eighty Six, Six Hundred Twenty Nine Dollars & Zero Cents  
DOLLARS AND  
CENTS.

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\$ 5,686,629.00

(WRITTEN NUMERICAL AMOUNT)

(The Contractor shall fill in the total TASK 1 contract amount on the lines above)

**(4B) SCHEDULE OF PRICES AND QUANTITIES FOR FUTURE TASKS**

Contractor for future Tasks shall respond to pricing instructions from the DIA Project Manager. In most cases the format is likely to follow the unit price format as used for the Task1 work.

## (4C) PRICES FOR WORK NOT COVERED IN (4A) OR (4B)

Should DIA require work that is not covered by a unit price format, the contractor shall provide and use the following established rates to determine the proposed cost. All pricing is subject to the requirements of the Contract General Conditions and subject to evaluation by the DIA Project Manager.

### **A. Supervisory & Office Personnel**

The positions and numbers of staff personnel for each Task of this On Call project will be established through negotiations with the DIA Project Manager. The contractor shall provide agreed-to staff positions to manage the work on a level-of-effort basis. The staff rates in this section shall include costs of all staff wages, fringe benefits, burdens, overhead, home office overhead, profit, safety and other training, staff operated equipment (including cell phones, radios and field transportation), office furniture, office supplies, office maintenance, office utilities and office rent. If office space is not available in existing DIA facilities, costs for trailer set up will be included in negotiated mobilization costs. Contractor rates indicated below are applicable to the General Contractor only.

<b>Position</b>	<b>Hourly Rate</b>
Project Manager	\$ 45.00
Project Superintendent	\$ 55.00
Project Engineer	\$ N/A
Assistant Superintendent	\$ 48.00
Estimator	\$ 45.00
Office Engineer	\$ N/A
Field Engineer	\$ N/A
Secretary/Timekeeper	\$ 30.00

### **B. Labor Markup**

Labor Markup Percentage 12%

Markup to be multiplied by estimated labor cost as negotiated. Estimated labor cost will be the estimated actual labor costs submitted by contractor and verified by CCD. Estimated labor cost will include all craft wages, fringe benefits and burdens. Markup will include overhead, home office overhead safety and other training, profit, small tools, and consumables. Small tools are defined as any tool with a replacement value of \$500 or less. Consumables are defined as any materials that may be consumed by the work and are not part of the permanent installation (e.g. rags, drill bits, hard hats, safety glasses, gloves, saw blades, reciprocating saw blades, tape, welding rod, etc...).

### **C. Material Markup**

Material Markup Percentage 12%

Markup to be multiplied by actual material quotes if available or estimated cost if not available. Markup will include overhead, home office overhead and profit. Markup will not be applied to sales taxes.

**D. Equipment Markup**

Equipment Markup Percentage 12 %

Markup to be multiplied by estimated equipment costs as negotiated. Estimated equipment utilization rates will be derived from the Primedia Rental Rate Bluebook as modified by CDOT Standard Specifications for Road and Bridge Construction, Section 109.04 (c) and (d). Markup to include overhead, home office overhead and profit.

**E. Subcontractor Markup**

Subcontractor Markup Percentage 8 % Vol.

*Revised 11/2/2011*



Markup to be multiplied by agreed-to subcontractor proposals to the prime contractor. Markups to include all prime contractor overhead, home office overhead, and profit.

**F. Engineering and Survey**

Engineering and Survey Markup Percentage 12 %

Normally, Engineering will be provided by the CCD. If engineering is provided by the contractor the Subcontractor markup will be applied. Engineering of minor portions of Task Orders will not be marked up by this percentage but will be included in the other markups.

Survey will normally be provided by the contractor. The markup for survey will be the markup percentage multiplied by the agreed-to estimated cost of the survey. The markup percentage will include overhead, home office overhead, and profit.

**G. Permits**

Permits will be provided by the contractor. Permit costs will be the agreed-to or actual cost of the permit without markup. Costs to acquire the permit will be included in the other markups.

**H. Sales Tax, Bond and Insurance**

Sales tax, bonding and insurance costs will be the agreed-to or actual cost without markup.

**I. Independent Testing Agency**

Testing Markup Percentage 12 %

Testing will normally be provided by the contractor. Testing costs will be the agreed-to or actual invoiced cost of the tests or testing agency multiplied by the above markup.

**J. Additional or Extra Work Performed within a Task Order**

Extra work will be performed utilizing the same markups as the original Task Order.

**K. Retention**

Final settlement and release of retention will be made upon completion of each Task Order rather than contract completion.

**L. Subcontractors**

Subcontractors will be required to use the same markups as the prime contractor. Reimbursement and mark-up percentage for subcontractor staff, when required, will be as described in Part C labor Mark-up.

**DENVER INTERNATIONAL AIRPORT**  
**On-Call Construction Services 2012-13 Terminal Roadway & Garage**  
**Repairs**  
**Contract No. 201102006**

**Proposal Data Forms**

Proposer shall submit its Proposal Data in accordance with the format shown on each of the following Proposal Data Forms. Proposer shall prepare and use as many sheets as are necessary to provide the information required. Proposer shall ensure that each page of its Proposal Data is completed and properly identified with the Proposal Data form name, Proposer's name, and page number.

**DENVER INTERNATIONAL AIRPORT  
On-Call Construction Services 2012-13 Terminal Roadway & Garage  
Repairs  
Contract No. 201102006**

**Proposal Data Forms  
INFORMATION ABOUT CONTRACTOR**

1. Name of Proposer/Contractor: John Rohrer Contracting Co., Inc.
2. Type of business entity: Corporation  
NOTE: If Proposer is a **partnership** or **joint venture**, give full names of all partners or joint venturers. Proposal must be signed by all joint venturers. If Proposer is a **limited liability company**, Proposal must be signed by authorized manager (may be signed by member-manager if LLC is organized to allow management by members).
3. Prequalified by City and County of Denver as Construction Contractor : Categories: 7-g Structural Rehabilitation  
Monetary Limit: \$7,500,000.00
4. Address of Contractor: 2820 Roe Lane, Bldg. S  
Kansas City, KS 66103  
Telephone: 913/236-5005 Fax: 913/236-7291
5. Established where and when: 1926; Incorporated 10/14/1948
6. Contractor's Banks: US Bank  
9900 West 87th Street, Overland Park, KS 66213
7. Principal Officers of Contractor (managers and members if LLC):
- |                                     |                                  |
|-------------------------------------|----------------------------------|
| Name: <u>John Rohrer</u>            | Name: <u>Brandon McMullen</u>    |
| Title: <u>President</u>             | Title: <u>Vice President</u>     |
| Name: <u>Analee Lanio</u>           | Name: <u>C. Wm. Henry</u>        |
| Title: <u>Secretary / Treasurer</u> | Title: <u>Sr. Vice president</u> |

8. Proposer's/Contractor's City and County of Denver Contractor License No.: 234260  
License if it has obtained one: Class: General Contractor - Class A

A contractor license is required prior to start of construction but not prior to Proposal submittal.

9. Proposer's/Contractor's state of incorporation (state of organization if an LLC or partnership): Missouri

10. Proposer's Surety: Fidelity and Deposit Company of Maryland

11. Surety's State of Incorporation: Maryland

12. Address of Contractor in other areas (if different from No. 4): Denver Branch Office

10221 Hwy 73

Conifer, CO 80433

13. Name and address of person to receive payments: Analee Lanio, Secretary/Treasurer

John Rohrer Contracting Co., Inc.

2820 Roe, Lane, Bldg. S

Kansas City, KS 66103

14. If the Proposer/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 Proposer/Contractor shall identify all applicable labor agreements (if any) to be used in the performance of the Work:

See attached list - Next Page



# John Rohrer Contracting Co, Inc.

## Current Labor Agreements

### **List of Union Agreements:**

Local Number	Union Name	Agreement Expires
290 & 1260	KC Laborers	3/31/2014
518	KC Cement Local	3/21/2013
101	KC Operators	3/31/2012
61	KC Carpenters	3/31/2013
541	KC Teamsters	3/31/2014

Plus we sign up with Labor Unions wherever each project is located

### **Trade Association Membership:**

American Concrete Institute, American Shotcrete Association, International Concrete Repair Institute, Builders Association of Kansas & Missouri, International Parking Institute, AGC, Concrete Promotional Corp, National Parking Association and Kansas City KS Chamber of Commerce

### **List local or national accredited training programs in which you participate (craft or management training):**

Builders Association of Kansas and Missouri, Laborer's Local 264 & 1290, OSHA training through Travelers Insurance, Apprenticeship Programs through all the trades we hire

Proposer JOHN ROHRER CONTRACTING COMPANY, INC.

**DENVER INTERNATIONAL AIRPORT  
On-Call Construction Services 2012-13 Terminal Roadway & Garage  
Repairs  
Contract No. 201102006**

**Proposal Data Forms  
EQUAL OPPORTUNITY REPORT STATEMENT**

Each Proposer shall complete and sign the Equal Opportunity Report Statement. A Proposal may be considered unresponsive and may be rejected, in the Owner's sole discretion, if the Proposer fails to provide the fully executed Statement or fails to furnish required data. The Proposer 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.

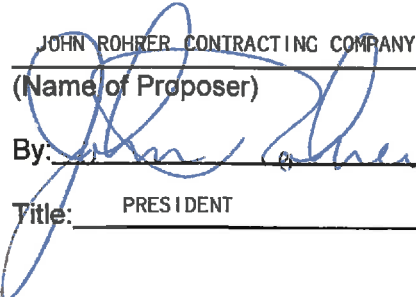
The Proposer shall furnish similar Statements executed by each of its first-tier and second-tier subcontractors and shall obtain similar compliance by such subcontractors, before awarding subcontracts. No subcontract shall be awarded to any non-complying subcontractor.

Equal Opportunity Report Statement  
as Required in 41 CFR 60-1.7(b)

The Proposer shall complete the following statements by checking the appropriate blanks. Failure to complete these blanks may be grounds for rejection of Proposal:

1. The Proposer has  has not  developed and has on file at each establishment affirmative action programs pursuant to 41 CFR 60-1.40 and 41 CFR 60-2.
2. The Proposer has  has not  participated in any previous contract or subcontract subject to the equal opportunity clause prescribed by Executive Order 11246, as amended.
3. The Proposer has  has not  filed with the Joint Reporting Committee the annual compliance report on Standard Form 100 (EEO-1 Report).
4. The Proposer does  does not  employ fifty or more employees.

Dated: SEPTEMBER 29, 2011

JOHN ROHRER CONTRACTING COMPANY, INC.  
\_\_\_\_\_  
(Name of Proposer)  
By:  \_\_\_\_\_  
Title: PRESIDENT

Proposer JOHN ROHRER CONTRACTING COMPANY, INC.

**DENVER INTERNATIONAL AIRPORT  
On-Call Construction Services 2012-13 Terminal Roadway & Garage  
Repairs  
Contract No. 201102006**

**Proposal Data Forms**

**CERTIFICATION OF NON-SEGREGATED FACILITIES  
(Must be completed and submitted with the Proposal)**

The Proposer certifies that it does not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Proposer 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 Proposer 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 Proposer 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 \$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: SEPTEMBER 29, 2011

JOHN ROHRER CONTRACTING COMPANY, INC.  
(Name of Proposer)

By: 

Title: PRESIDENT

**LIST OF PROPOSED MINORITY AND WOMEN BUSINESS ENTERPRISE  
PROPOSERS, SUBCONTRACTORS, SUPPLIERS (MANUFACTURERS) OR BROKERS**

CITY OF DENVER  
DEPARTMENT OF AVIATION  
ON-CALL CONSTRUCTION SERVICES 2012-13 Terminal Roadway & Garage Repairs  
Contract No. 201102006

The undersigned Proposer proposes to utilize the following Minority and Women Business Enterprises (MBE/WBEs) for the project. All listed firms are **CURRENTLY** certified by the City and County of Denver. MBE/WBE prime Proposers must detail their Proposal information below. List at least one MBE/WBE subcontractor, supplier, manufacturer or broker for each specification section division starting with Division 2. If the Prime Contractor does not propose to utilize or there are no certified MBE/WBE's for a particular division please indicate with NA in space.

**CHECK BOX IF APPLICABLE:**

<input type="checkbox"/>	MBE/WBE Prime Proposer
--------------------------	------------------------

**CSI SPECIFICATION DIVISION 2**

1. Business Name: Northern Colorado Traffic Control  
Type of Service: Traffic Control  
Contact Person: Ms Trish Moran
2. Business Name: N/A  
Type of Service: \_\_\_\_\_  
Contact Person: \_\_\_\_\_

**CSI SPECIFICATION DIVISION 3**

1. Business Name: N/A  
Type of Service: \_\_\_\_\_  
Contact Person: \_\_\_\_\_
2. Business Name: N/A  
Type of Service: \_\_\_\_\_  
Contact Person: \_\_\_\_\_

**CSI SPECIFICATION DIVISION 4**

1. Business Name: Quality Linings & Painting  
Type of Service: Lalit Mahra  
Contact Person: Clean / Paint Beams, Column Bases, Atrium Spandrels
2. Business Name: N/A  
Type of Service: \_\_\_\_\_  
Contact Person: \_\_\_\_\_

**CSI SPECIFICATION DIVISION 5**

- 1. Business Name: American Industrial & Construction Supply, Inc.  
Type of Service: Provide Misc. Fasteners  
Contact Person: Mr. David LaDoux
  
- 2. Business Name: N/A  
Type of Service: \_\_\_\_\_  
Contact Person: \_\_\_\_\_

**CSI SPECIFICATION DIVISION 6**

- 1. Business Name: N/A  
Type of Service: \_\_\_\_\_  
Contact Person: \_\_\_\_\_
  
- 2. Business Name: N/A  
Type of Service: \_\_\_\_\_  
Contact Person: \_\_\_\_\_

**CSI SPECIFICATION DIVISION 7**

- 1. Business Name: American Industrial & Construction Supply, Inc.  
Type of Service: Provide Waterproofing Materials  
Contact Person: Mr. David LaDoux
  
- 2. Business Name: \_\_\_\_\_  
Type of Service: \_\_\_\_\_  
Contact Person: \_\_\_\_\_

**CSI SPECIFICATION DIVISION 8**

- 1. Business Name: N/A  
Type of Service: \_\_\_\_\_  
Contact Person: \_\_\_\_\_
  
- 2. Business Name: N/A  
Type of Service: \_\_\_\_\_  
Contact Person: \_\_\_\_\_

**CSI SPECIFICATION DIVISION 9**

- 1. Business Name: Quality Linings & Painting, Inc.  
Type of Service: Painting  
Contact Person: Lalit Mehra
  
- 2. Business Name: N/A  
Type of Service: \_\_\_\_\_  
Contact Person: \_\_\_\_\_

**CSI SPECIFICATION DIVISION 10**

- 1. Business Name: Northern Colorado Traffic Control  
Type of Service: Pedestrian Traffic Control  
Contact Person: Trish Moran
  
- 2. Business Name: N/A  
Type of Service: \_\_\_\_\_  
Contact Person: \_\_\_\_\_

**CSI SPECIFICATION DIVISION 11**

- 1. Business Name: N/A  
Type of Service: \_\_\_\_\_  
Contact Person: \_\_\_\_\_
  
- 2. Business Name: N/A  
Type of Service: \_\_\_\_\_  
Contact Person: \_\_\_\_\_

**CSI SPECIFICATION DIVISION 12**

- 1. Business Name: N/A  
Type of Service: \_\_\_\_\_  
Contact Person: \_\_\_\_\_
  
- 2. Business Name: N/A  
Type of Service: \_\_\_\_\_  
Contact Person: \_\_\_\_\_

**CSI SPECIFICATION DIVISION 13**

- 1. Business Name: N/A  
Type of Service: \_\_\_\_\_  
Contact Person: \_\_\_\_\_
  
- 2. Business Name: N/A  
Type of Service: \_\_\_\_\_  
Contact Person: \_\_\_\_\_

**CSI SPECIFICATION DIVISION 14**

- 1. Business Name: N/A  
Type of Service: \_\_\_\_\_  
Contact Person: \_\_\_\_\_
  
- 2. Business Name: N/A  
Type of Service: \_\_\_\_\_  
Contact Person: \_\_\_\_\_

**CSI SPECIFICATION DIVISION 15**

- 1. Business Name: N/A  
Type of Service: \_\_\_\_\_  
Contact Person: \_\_\_\_\_
  
- 2. Business Name: N/A  
Type of Service: \_\_\_\_\_  
Contact Person: \_\_\_\_\_

**CSI SPECIFICATION DIVISION 16**

- 1. Business Name: N/A  
Type of Service: \_\_\_\_\_  
Contact Person: \_\_\_\_\_
  
- 2. Business Name: N/A  
Type of Service: \_\_\_\_\_  
Contact Person: \_\_\_\_\_

The undersigned certifies that it has carefully checked all words and statements made in these Proposal Forms.

This proposal 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 proposing in connection with this proposal.

Business Address of Proposer: 2820 Roe Lane, Bldg. S, Kansas City, KS 66103

Telephone Number of Proposer: 913/236-5005 Fax No. 913/236-7291

Social Security or Federal Employer ID Number of Proposer: 48-0530087

Name and location of the last work of this kind herein contemplated upon which the proposer was engaged:

Denver Airport, Contract CE10010: "2011 Parking Structure Repairs and Moisture Protection - Level 5"

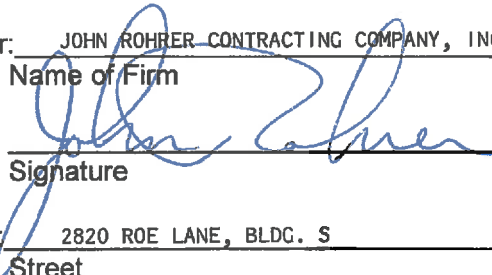
CITY AND COUNTY OF DENVER  
DEPARTMENT OF AVIATION

COMMITMENT TO MINORITY AND WOMEN BUSINESS ENTERPRISE  
PARTICIPATION  
On-Call Construction Services 2012-13 Terminal Roadway & Garage  
Repairs  
CONTRACT NO. 201102006

The undersigned has satisfied the MBE/WBE participant requirements in the following manner:  
(please check the appropriate space)

- The Proposer is committed to a minimum of 18% MBE/WBE utilization on the Project, and will submit Letters of Intent for each MBE/WBE listed in the Proposal Forms within three (3) working days after the Proposal opening.
- The Proposer is unable to meet the project goal of 18% MBE/WBE and is committed to a minimum of \_\_\_\_\_% MBE/WBE utilization on this project. The Proposer understands that it must submit a detailed statement of its good faith efforts, which occurred prior to the Proposal opening, to meet the project goal, and must submit Letters of Intent for each MBE/WBE listed in the Proposal Forms within three (3) working days after the Proposal opening.

Proposer: JOHN ROHRER CONTRACTING COMPANY, INC.  
Name of Firm

By:  PRESIDENT  
Signature Title

Address: 2820 ROE LANE, BLDG. S  
Street

KANSAS CITY, KS 66103  
City / State / Zip Code

Telephone: 913/236.5005 913/236.7291  
Phone Fax





Office of Economic Development  
 Division of Small Business Opportunity  
 Compliance Unit  
 201 West Colfax Avenue, Dept. 907  
 Denver, CO 80202  
 Phone: 720-913-1999  
 Fax: 720-913-1803

**LETTER OF INTENT (LOI)**

All lines must be completed or marked N/A for Not Applicable  
 Submit the attached completed checklist with this letter.

<b>Project No.:</b> 201102906	<b>Project Name:</b> On Call Construction Services 2012-2013 Terminal Roadway & Garage Repair
-------------------------------	--

**A. The Following Section Is To Be Completed by the Bidder/Consultant  
 This Letter of Intent Must be Signed by the Bidder/Consultant and M/WBE, SBE or DBE**

<b>Name of Bidder/Consultant:</b> John Rohrer Contracting Co., Inc.		<b>Phone:</b> (303) 838-4300	
<b>Contact Person:</b> Kirt Courkamp		<b>Email:</b> kirtcourkamp@jrcccolorado.net	
<b>Address:</b> 10221 Hwy 73		<b>City:</b> Conifer	<b>State:</b> CO <b>Zip:</b> 80433
		<b>Fax:</b> (303) 838-4554	

**B. The Following Section is To Be Completed by the M/WBE, SBE or DBE, at any Tier  
 This Letter of Intent Must be Signed by the M/WBE, SBE or DBE and Bidder/Consultant**

<b>Name of Certified Firm:</b> American Industrial & Construction Supply		<b>Phone:</b> 303-292-5424	
<b>Contact Person:</b> Mr. Dave Ladoux		<b>Email:</b> michelle@aicscolorado.com	
<b>Address:</b> 575 E. 58th Ave.		<b>City:</b> Denver	<b>State:</b> CO <b>Zip:</b> 80216
		<b>Fax:</b> 303-292-9036	

<b>Please check the designation which applies to the certified firm.</b>	<input checked="" type="checkbox"/> MBE/WBE (✓)	<input type="checkbox"/> SBE (✓)	<input checked="" type="checkbox"/> DBE (✓)
--	---	----------------------------------	---

**Indirect Utilization:** If this M/WBE, SBE or DBE is not a direct first tier subcontractor/subconsultant, supplier or broker to the Bidder/Consultant, please indicate the name of the subcontractor/subconsultant, supplier or broker which is utilizing the participation of this firm:

**A Copy of the M/WBE, SBE or DBE Letter of Certification must be Attached**

Identify the scope of the work to be performed or supply item that will be provided by the M/WBE/SBE/DBE. **On unit price bids only, identify which bid line items the M/WBE/SBE/DBEs scope of work or supply corresponds to.**

11.xx Series - Sealants; 10.xx Series - Expansion Joints; 15.10 - Sealer; 16.xx Series Traffic Coating; 25.xx Pipe & Fittings Material / Equipment Supply

<input type="checkbox"/> Subcontractor/Subconsultant (✓)	<input checked="" type="checkbox"/> Supplier (✓)	<input type="checkbox"/> Broker (✓)
--	--	-------------------------------------

**Bidder** intends to utilize the aforementioned M/WBE, SBE or DBE for the Work/Supply described above. The cost of the work and percentage of the total subcontractor M/WBE, SBE or DBE bid amount is:

\$		%
<b>Consultant</b> intends to utilize the aforementioned M/WBE, SBE or DBE for the Work/Supply described above. The percentage of the work of the total subconsultant M/WBE, SBE or DBE will perform is:	(60% of Total Amt = \$478,800.00)	8.42 %
If the fee amount of the work to be performed is requested, the fee amount, is:	\$ 798,000.00	

**Bidder/Consultant's Signature:** *[Signature]* **Date:** 09/28/2011

**Title:** Project Manager

**M/WBE, SBE or DBE Firm's Signature:** *[Signature]* **Date:** 9/28/2011

**Title:** President

If the above named Bidder/Consultant is not determined to be the successful Bidder/Consultant, this Letter of Intent shall be null and void  
 COMP-FRM-012 Revised 3/10/2010



**DENVER**  
THE MILE HIGH CITY

8/30/2011

Veronica LeDoux  
American Industrial & Construction Supply, Inc.  
975 E. 58th Ave., Unit C  
Denver, CO 80216

Office of Economic Development  
Division of Small Business Opportunity

201 W. Colfax Ave, Dept 907  
Denver, CO 80202  
p: 720.913.1999  
f: 720.913.1809  
www.milehigh.com

Denver International Airport  
Airport Office Building, Suite 7810  
8500 Peña Boulevard  
Denver, CO 80249-6340  
p: 303.342.2180  
f: 303.342.2190  
www.flydenver.com

Dear Veronica LeDoux:

The City and County of Denver, Division of Small Business Opportunity (DSBO) is in receipt of your renewal application for American Industrial & Construction Supply, Inc.

We are extending your certification while your application is in process. Therefore, American Industrial & Construction Supply, Inc. will have the following certifications until further notice:

- Airport Concessionaire Disadvantaged Business Enterprise (ACDBE)
- Disadvantaged Business Enterprise (DBE)
- Small Business Enterprise (SBE)
- Small Business Enterprise-Concessions (SBEC)
- Minority/Women Business Enterprise (MWBE)

Review of your documentation will begin in the near future. Please note that at any time during this review, a Certification Analyst may request additional information to complete the review.

Please notify our office immediately, if there are any changes in legal status, management, control, or ownership of your business, contact information, etc, from that provided on the documentation submitted to our office.

If you have any questions, please contact us at (720) 913-1999 or via email at [certificationinfo@denvergov.org](mailto:certificationinfo@denvergov.org). Thank you.

Sincerely,

Claire Spahr  
Certification Team, Division of Small Business Opportunity



**DENVER**  
THE MILE HIGH CITY

Office of Economic Development  
Division of Small Business Opportunity  
Compliance Unit  
201 West Colfax Avenue, Dept. 907

Denver, CO 80202  
Phone: 720-913-1999  
Fax: 720.913-1803

**LETTER OF INTENT (LOI)**

All lines must be completed or marked N/A for Not Applicable  
Submit the attached completed checklist with this letter.

**Project No.:** 201102006      **Project Name:** On Call Construction Services 2012-2013  
Terminal Roadway & Garage Repair

**A. The Following Section is To Be Completed by the Bidder/Consultant**  
**This Letter of Intent Must be Signed by the Bidder/Consultant and M/WBE, SBE or DBE**

**Name of Bidder/Consultant:** John Rohrer Contracting Co., Inc.      **Phone:** (303) 838-4300  
**Contact Person:** Kirt Courkamp      **Email:** kirtcourkamp@jrcccolorado.net      **Fax:** (303) 838-4554  
**Address:** 10221 Hwy 73      **City:** Conifer      **State:** CO      **Zip:** 80433

**B. The Following Section is To Be Completed by the M/WBE, SBE or DBE, at any Tier**  
**This Letter of Intent Must be Signed by the M/WBE, SBE or DBE and Bidder/Consultant**

**Name of Certified Firm:** Quality Linings & Painting Co., Inc.      **Phone:** (303) 307-1313  
**Contact Person:** Lalit Mehra      **Email:** lalit@qlapi.com      **Fax:** (303) 307-1302  
**Address:** 8250 E. 40th, Ave.      **City:** Denver      **State:** CO      **Zip:** 80207

Please check the designation which applies to the certified firm:       MBE/WBE (✓)       SBE (✓)       DBE (✓)

**Indirect Utilization:** If this M/WBE, SBE or DBE is not a direct first tier subcontractor/subconsultant, supplier or broker to the Bidder/ Consultant, please indicate the name of the subcontractor/subconsultant, supplier or broker which is utilizing the participation of this firm:

**A Copy of the M/WBE, SBE or DBE Letter of Certification must be Attached**

Identify the scope of the work to be performed or supply item that will be provided by the M/WBE/SBE/DBE. **On unit price bids only, identify which bid line items the M/WBE/SBE/DBEs scope of work or supply corresponds to.**

Clean Atrium Spandrels, Paint Drain Pipe, Paint Columns / Beams, Paint Canopy Bases  
Bid Items, 25.30 (Painting Only), 25.70, 25.80, 43.60, 45.40, 45.50, 45.60, 45.70, 45.80

Subcontractor/Subconsultant (✓)       Supplier (✓)       Broker (✓)

**Bidder** intends to utilize the aforementioned M/WBE, SBE or DBE for the Work/Supply described above. The cost of the work and percentage of the total subcontractor M/WBE, SBE or DBE bid amount is:  
\$ \_\_\_\_\_ %  
**Consultant** intends to utilize the aforementioned M/WBE, SBE or DBE for the Work/Supply described above. The percentage of the work of the total subconsultant M/WBE, SBE or DBE will perform is: 5.02 %  
If the fee amount of the work to be performed is requested, the fee amount, is: \$ 285,438.00

**Bidder/Consultant's Signature:** *[Signature]*      **Date:** 09/28/2011  
**Title:** Denver Branch Manager  
**M/WBE, SBE or DBE Firm's Signature:** *[Signature]*      **Date:** 9/28/11  
**Title:** President

If the above named Bidder/Consultant is not determined to be the successful Bidder/Consultant, this Letter of Intent shall be null and void.



**DENVER**  
THE MILE HIGH CITY

8/19/2011

Lalit Mehra  
Quality Linings & Painting Company, Inc  
8250 East 40th Avenue  
Denver, CO 80207

Office of Economic Development  
Division of Small Business Opportunity

201 W. Colfax Ave, Dept 907  
Denver, CO 80202  
p: 720.913.1999  
f: 720.913.1808  
www.milehigh.com

Denver International Airport  
Airport Office Building, Suite 7810  
8500 Peña Boulevard  
Denver, CO 80249-8340  
p: 303.342.2180  
f: 303.342.2190  
www.flydenver.com

Dear Lalit Mehra:

The City and County of Denver, Division of Small Business Opportunity (DSBO) is in receipt of your renewal application for Quality Linings & Painting Company, Inc.

We are extending your certification while your application is in process. Therefore, Quality Linings & Painting Company, Inc will have the following certifications until further notice:

- Airport Concessionaire Disadvantaged Business Enterprise (ACDBE)
- Disadvantaged Business Enterprise (DBE)
- Small Business Enterprise (SBE)
- Small Business Enterprise-Concessions (SBEC)
- Minority/Women Business Enterprise (MWBE)

Review of your documentation will begin in the near future. Please note that at any time during this review, a Certification Analyst may request additional information to complete the review.

Please notify our office immediately, if there are any changes in legal status, management, control, or ownership of your business, contact information, etc, from that provided on the documentation submitted to our office.

If you have any questions, please contact us at (720) 913-1999 or via email at [certificationinfo@denvergov.org](mailto:certificationinfo@denvergov.org). Thank you.

Sincerely,

Claire Spahr  
Certification Team, Division of Small Business Opportunity

**311**  
for City Services  
Denver gets it done!



DENVER  
THE MILE HIGH CITY

Office of Economic Development  
Division of Small Business Opportunity  
Compliance Unit  
201 West Colfax Avenue, Dept. 907  
Denver, CO 80202  
Phone: 720-913-1999  
Fax: 720-913-1803

### LETTER OF INTENT (LOI)

All lines must be completed or marked N/A for Not Applicable  
Submit the attached completed checklist with this letter

<b>Project No.:</b> 201102096	<b>Project Name:</b> On Call Construction Services 2012-2013 Terminal Roadway & Garage Repair
-------------------------------	--

#### A. The Following Section is To Be Completed by the Bidder/Consultant This Letter of Intent Must be Signed by the Bidder/Consultant and M/WBE, SBE or DBE

<b>Name of Bidder/Consultant:</b> John Rohrer Contracting Co., Inc.		<b>Phone:</b> (303) 838-4300	
<b>Contact Person:</b> Kirt Courkamp		<b>Email:</b> kirtcourkamp@jreccolorado.net	
<b>Address:</b> 10221 Hwy 73		<b>City:</b> Conifer	<b>State:</b> CO
		<b>Zip:</b> 80433	<b>Fax:</b> (303) 838-4554

#### B. The Following Section is To Be Completed by the M/WBE, SBE or DBE, at any Tier This Letter of Intent Must be Signed by the M/WBE, SBE or DBE and Bidder/Consultant

<b>Name of Certified Firm:</b> Northern Colorado Traffic Control, Inc.		<b>Phone:</b> (970) 356-6881	
<b>Contact Person:</b> Trish Moran		<b>Email:</b> nctc1moran@aol.com	
<b>Address:</b> 1712 1st Ave.		<b>City:</b> Greeley	<b>State:</b> CO
		<b>Zip:</b> 80631	<b>Fax:</b> (970) 356-5862

<b>Please check the designation which applies to the certified firm.</b>	<input type="checkbox"/> MBE/WBE (√)	<input type="checkbox"/> SBE (√)	<input checked="" type="checkbox"/> DBE (√)
--	--------------------------------------	----------------------------------	---

**Indirect Utilization:** If this M/WBE, SBE or DBE is not a direct first tier subcontractor/subconsultant, supplier or broker to the Bidder/Consultant, please indicate the name of the subcontractor/subconsultant, supplier or broker which is utilizing the participation of this firm:

#### A Copy of the M/WBE, SBE or DBE Letter of Certification must be Attached

Identify the scope of the work to be performed or supply item that will be provided by the M/WBE/SBE/DBE. **On unit price bids only, identify which bid line items the M/WBE/SBE/DBEs scope of work or supply corresponds to.**

Traffic Control Plans, Devices, Flaggers, Set-up, Tear-Down

<input checked="" type="checkbox"/> Subcontractor/Subconsultant (√)	<input type="checkbox"/> Supplier (√)	<input type="checkbox"/> Broker (√)
---	---------------------------------------	-------------------------------------

**Bidder** intends to utilize the aforementioned M/WBE, SBE or DBE for the Work/Supply described above. The cost of the work and percentage of the total subcontractor M/WBE, SBE or DBE bid amount is:

\$		%
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**Consultant** intends to utilize the aforementioned M/WBE, SBE or DBE for the Work/Supply described above. The percentage of the work of the total subconsultant M/WBE, SBE or DBE will perform is:

4.57 %

If the fee amount of the work to be performed is requested, the fee amount, is:

\$ 260,000.00

<b>Bidder/Consultant's Signature:</b>	<b>Date:</b> 09/28/2011
---------------------------------------	-------------------------

**Title:** Denver Branch Manager

<b>M/WBE, SBE or DBE Firm's Signature:</b>	<b>Date:</b> 9/28/2011
--	------------------------

**Title:** Resident

If the above named Bidder/Consultant is not determined to be the successful Bidder/Consultant, this Letter of Intent shall be null and void

# NORTHERN COLORADO TRAFFIC CONTROL, INC.

## Certification #7496

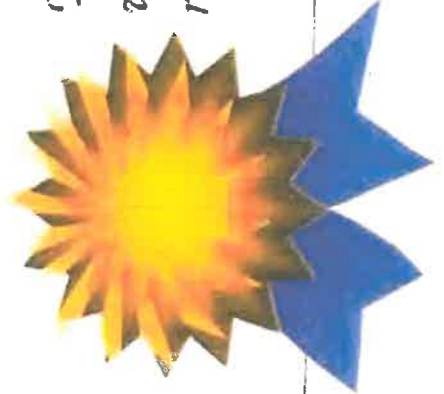
*Is hereby certified as a Disadvantaged Business Enterprise pursuant to U.S. Department of Transportation DBE regulations found at 49 CFR, Parts 23 and 26 and administered by Colorado's UCP.*

### Work Codes

207: TRAFFIC CONTROL	20701: FLAGGING
20702: CHANNELIZING DEVICES (VERTICAL PANELS, BARRELS, CONES, GLARE SCREENS)	
20703: TEMPORARY IMPACT ATTENUATORS	
20704: CONSTRUCTION SIGNING	20705: PAVEMENT MARKING
20706: PILOT VEHICLE	208: DELINEATORS AND REFLECTORS
23001: PERMANENT SIGNING	667: SIGNAGE
673: TRAFFIC SIGNS	

Certification Date: April 28, 2011 – April 27, 2013

*This certification expires on the aforementioned date. A new certificate will be issued ending every 3rd year, upon successfully meeting annual renewal requirements.*



May 3, 2011

*Tamela Lee, Director*

*UCP Partner at City and County of Denver*

*Date*

### Letter of Intent (LOI) Checklist

*All lines must be completed or marked N/A for Not Applicable  
Submit the attached completed checklist with this letter.*

<b>Completed</b>	
<input checked="" type="checkbox"/>	Project Number & Project Name
<input checked="" type="checkbox"/>	<b>Section A:</b> Name of Bidder/Consultant, Contact Person, Address, City, State, Zip, Phone, Email
<input checked="" type="checkbox"/>	<b>Section B:</b> Name of Certified Firm, Contact Person, Address, City, State, Zip, Phone, Email
<input checked="" type="checkbox"/>	Designation checked for MBE/WBE, SBE or DBE
<input checked="" type="checkbox"/>	<b>Indirect Utilization:</b> Name of subcontractor/subconsultant, supplier or broker is indicated if using the participation of a 2 <sup>nd</sup> tier subcontractor/subconsultant, supplier or broker.
<input checked="" type="checkbox"/>	Scope of work performed or item supplied by M/WBE, SBE or DBE
<input checked="" type="checkbox"/>	Line items performed, if line-item bid.
<input checked="" type="checkbox"/>	Copy of M/WBE, SBE or DBE Letter of Certification Attached
<input checked="" type="checkbox"/>	Designation checked for Subcontractor/Subconsultant, Supplier or Broker
	<b>If project is a hard bid...</b>
<input type="checkbox"/> N/A	Bidder has indicated dollar amount for value of work going to Subcontractor/ Subconsultant, Supplier or Broker
<input type="checkbox"/> N/A	Bidder has indicated percentage for value of work going to Subcontractor/ Subconsultant, Supplier or Broker
	<b>If project is an RFP/RFQ...</b>
<input checked="" type="checkbox"/>	Consultant has indicated percentage for value of work going to Subcontractor/ Subconsultant, Supplier or Broker Name & contact name for MWBE.
<input checked="" type="checkbox"/>	Fee amount if fee amount of work to be performed is requested.
<input checked="" type="checkbox"/>	Bidder/Consultant's Signature, Title & Date
<input checked="" type="checkbox"/>	M/WBE, SBE or DBE Firm's Signature, Title and Date

**The complete and accurate information that is required for the Letter of Intent is based on the following sections of the Ordinance: Section 28-63 and Section 28-68. Failure to complete this information on the Letter of Intent (LOI) may automatically deem a bid or proposal non-responsive.**



Small Business Opportunity Division

JOINT VENTURE AFFIDAVIT

"The Undersigned swear that the foregoing statements are correct and include all material information necessary to identify and explain the terms and operation of our joint venture and the intended participation by each joint venturer in the undertaking. Further, the Undersigned covenant and agree to provide the City current, complete, and accurate information regarding actual joint venture work and the payment thereof and any proposed changes in any of the joint venture arrangements and to permit the audit and examination of the books, records, and files of the joint venture, by authorized representatives of the City or Federal funding agency, if applicable. Any material misrepresentation will be grounds for terminating any contract which may be awarded and for initiating action under Federal or State laws concerning false statements."

Name of Firm _____	
Signature _____	Date _____
Name _____	Title _____

(Name) \_\_\_\_\_ appeared to me personally known, who, being first duly sworn, did execute the foregoing affidavit, and subscribe and swear to such affidavit before me, and did state that he or she was properly authorized by (Name of Firm) \_\_\_\_\_ to execute the affidavit and did so as his or her free act and deed.

Date: \_\_\_\_\_ Notary Public \_\_\_\_\_

State of \_\_\_\_\_ Commission Expires \_\_\_\_\_

County of \_\_\_\_\_

On this \_\_\_\_\_ day of \_\_\_\_\_ before me

(Seal)



Name of Firm _____	
Signature _____	Date _____
Name _____	Title _____

(Name) \_\_\_\_\_ appeared to me personally known, who, being duly sworn, did execute the foregoing affidavit, and did state that he or she was properly authorized by (Name of Firm)

\_\_\_\_\_ to execute the affidavit and did so at his or her free act and deed.

Date: \_\_\_\_\_ Notary Public \_\_\_\_\_

State of \_\_\_\_\_ Commission Expires \_\_\_\_\_

County of \_\_\_\_\_

On this \_\_\_\_\_ day of \_\_\_\_\_ before me.

(Seal)

Rev 8/2000

Small Business Opportunity Division

JOINT VENTURE ELIGIBILITY FORM

Joint Venture means an association of two (2) or more business enterprises to constitute a single business enterprise to perform a City professional design or construction services contract or City construction contract for which purpose they combine their property, capital, efforts, skills and knowledge, and in which each joint venturer is responsible for a clearly defined portion of the work, performs a commercially useful function, and shares in the ownership, control, management responsibilities, risks and profits of the joint venture. D.R.M.C.28-203. (p)

1. Name of Joint Venture \_\_\_\_\_

2. Address of Joint Venture: \_\_\_\_\_

Address

\_\_\_\_\_ City

\_\_\_\_\_ State

\_\_\_\_\_ Zip Code

3. Telephone number of joint venture:(\_\_\_\_\_) \_\_\_\_\_

4. Identify the firms which comprise the joint venture

A. Name: \_\_\_\_\_

Address: \_\_\_\_\_

B. Name: \_\_\_\_\_

Address: \_\_\_\_\_

C. Name: \_\_\_\_\_

Address: \_\_\_\_\_

1) Describe the role of the MBE/WBE in the Joint Venture:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(Attach additional information if necessary)

2) Briefly describe the experience and business qualifications of each non-MBE/WBE Joint Venturer.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(Attach additional information if necessary)

5. Name of the Joint Venture's Business: \_\_\_\_\_

6. Provide a copy of the signed Joint Venture Agreement

7. What is the claimed percentage of MBE/WBE ownership? \_\_\_\_\_ %

8. Ownership of Joint Venture: (This need not be filled in if described in the joint venture agreement provided in question 6.)

(a) Profit and loss sharing: \_\_\_\_\_  
\_\_\_\_\_

(b) Capital contributions, including equipment: \_\_\_\_\_  
\_\_\_\_\_

Other applicable ownership interests: \_\_\_\_\_  
\_\_\_\_\_

Duration of the joint venture:

From: \_\_\_\_\_ To: \_\_\_\_\_

9. Control of and participation in this contract. Identify which firm and those individuals (and their titles) who are responsible for the day-to-day management and policy decision making, including but not limited to those with prime responsibility for:

(a) Financial Decisions:

Firm: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

(b) Management Decisions:

(1) Estimating

Firm: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

(2) Marketing and Sales

Firm: _____
Name: _____
Title: _____
(3) Hiring and firing of management personnel
Firm: _____
Name: _____
Title: _____
(4) Purchasing of major items or supplies
Firm: _____
Name: _____
Title: _____

**Note:** (1) An MBE/WBE performs a commercially useful function when it is responsible for execution of a distinct element of the work of the contract and carrying out its responsibilities by actually performing, managing, and supervising the work involved. To determine whether an MBE/WBE is performing a commercially useful function, the amount of work subcontracted, industry practices, and other relevant factors shall be evaluated.

(2) An MBE/WBE does not perform a commercially useful function if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of MBE/WBE participation or the MBE/WBE subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved.

(3) A joint venture which includes one (1) or more MBE/WBEs is subject to the review and approval by the Director of the Small Business Opportunity Division and the participation will count toward satisfaction of the MBE/WBE goal upon confirmation of the utilization in the joint venture of joint management and full integration of work forces by the joint venture partners.

If there are any significant changes in this submittal, the joint venture members must immediately notify the Mayor's office of Small Business Opportunity Division.

Proposer John Rohrer Contracting Co., Inc.

**DENVER INTERNATIONAL AIRPORT  
On-Call Construction Services 2012-13 Terminal Roadway & Garage  
Repairs  
Contract No. 201102006**

**Proposal Bond**

**KNOW ALL MEN BY THESE PRESENTS**

Fidelity and Deposit  
Company of Maryland

THAT John Rohrer Contracting Company, Inc., as Principal, and \_\_\_\_\_, a corporation organized and existing under and by virtue of the laws of the State of Maryland \_\_\_\_\_, and authorized to do business within the State of Colorado as Surety, are held and firmly bound unto the City and County of Denver, Colorado, as Obligee, in the full and just sum of FIFTY THOUSAND Dollars and NO/100 Cents (\$50,000.00), lawful money of the United States, for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents:

WHEREAS, the said Principal is herewith submitting its Proposal, dated on September 29th, 2011, for the construction of Contract No. 201102006, On-Call Construction Services 2012-13 Terminal Roadway and Garage Repairs, Denver International Airport, 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 Proposal that the Principal deposit specified Proposal security in the amount of Fifty Thousand Dollars (\$50,000.00), 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 it, 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 therefore, on the prescribed form presented to it for signature, enter into a written Contract with the Obligee in accordance with his Proposal 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 Proposal 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 29th day of September, 2011.

Attest:

*Mailee A. Lario*  
Secretary  
[SEAL if Proposer a corporation]

**PRINCIPAL**  
John Rohrer Contracting Company, Inc.  
2820 S. Roe Lane  
Kansas City, KS 66103-1594

By: *[Signature]*  
President

**SURETY**  
Fidelity and Deposit Company of Maryland  
1400 American Lane, Tower I, 18th Floor  
Schaumburg, IL 60196-1058 847-605-6000

By: *[Signature]*  
Attorney-in-Fact Kathleen M. Coen, Attorney-in-Fact

(ATTACH POWER OF ATTORNEY)

Power of Attorney shall be certified as to the date of Proposal.

**Power of Attorney  
FIDELITY AND DEPOSIT COMPANY OF MARYLAND  
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY**

KNOW ALL MEN BY THESE PRESENTS: That the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, and the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, corporations of the State of Maryland, by FRANK E. MARTIN JR., Vice President, and GERALD F. HALEY, Assistant Secretary, in pursuance of authority granted by Article VI, Section 2, of the By-Laws of said Companies, which are set forth on the reverse side hereof and are hereby certified to be in full force and effect on the date hereof, does hereby nominate, constitute and appoint **Debra J. SCARBOROUGH, Claudia MANDATO, Christy M. MCCART, Mary T. FLANIGAN, Kathleen M. COEN, Kathy L. FAGAN, Nancy A. CLOVER, Laura M. MURREN and Charissa D. LECUYER, all of Kansas City, Missouri, EACH** its true and lawful agent and Attorney-in-Fact, to make, execute, seal and deliver, for and on its behalf as surety, and as its act and deed: **any and all bonds and undertakings**, and the execution of such bonds or undertakings in pursuance of these presents, shall be as binding upon said Companies, as fully and amply, to all intents and purposes, as if they had been duly executed and acknowledged by the regularly elected officers of the Company at its office in Baltimore, Md. in their own proper persons. This power of attorney revokes that issued on behalf of Melissa D. EVANS, Debra J. SCARBOROUGH, Claudia MANDATO, Christy M. MCCART, Mary T. FLANIGAN, Kathleen M. COEN, Kathy L. FAGAN, Nancy A. CLOVER, Laura M. MURREN, Charissa D. LECUYER, dated February 8, 2011.

The said Assistant Secretary does hereby certify that the extract set forth on the reverse side hereof is a true copy of Article VI, Section 2, of the By-Laws of said Companies, and is now in force.

IN WITNESS WHEREOF, the said Vice-President and Assistant Secretary have hereunto subscribed their names and affixed the Corporate Seals of the said FIDELITY AND DEPOSIT COMPANY OF MARYLAND, and the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, this 1st day of August, A.D. 2011.

ATTEST:

**FIDELITY AND DEPOSIT COMPANY OF MARYLAND  
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY**



*Gerald F. Haley*

By:

*Frank E. Martin Jr.*

Gerald F. Haley

Assistant Secretary

Frank E. Martin Jr.

Vice President

State of Maryland }  
City of Baltimore } ss:

On this 1st day of August, A.D. 2011, before the subscriber, a Notary Public of the State of Maryland, duly commissioned and qualified, came FRANK E. MARTIN JR., Vice President, and GERALD F. HALEY, Assistant Secretary of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, and the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, to me personally known to be the individuals and officers described in and who executed the preceding instrument, and they each acknowledged the execution of the same, and being by me duly sworn, severally and each for himself depose and saith, that they are the said officers of the Companies aforesaid, and that the seals affixed to the preceding instrument is the Corporate Seals of said Companies, and that the said Corporate Seals and their signatures as such officers were duly affixed and subscribed to the said instrument by the authority and direction of the said Corporations.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Official Seal the day and year first above written.



*Constance A. Dunn*

Constance A. Dunn

Notary Public

My Commission Expires: July 14, 2015

**EXTRACT FROM BY-LAWS OF FIDELITY AND DEPOSIT COMPANY OF MARYLAND**

"Article VI, Section 2. The Chairman of the Board, or the President, or any Executive Vice-President, or any of the Senior Vice-Presidents or Vice-Presidents specially authorized so to do by the Board of Directors or by the Executive Committee, shall have power, by and with the concurrence of the Secretary or any one of the Assistant Secretaries, to appoint Resident Vice-Presidents, Assistant Vice-Presidents and Attorneys-in-Fact as the business of the Company may require, or to authorize any person or persons to execute on behalf of the Company any bonds, undertaking, recognizances, stipulations, policies, contracts, agreements, deeds, and releases and assignments of judgements, decrees, mortgages and instruments in the nature of mortgages,...and to affix the seal of the Company thereto."

**EXTRACT FROM BY-LAWS OF COLONIAL AMERICAN CASUALTY AND SURETY COMPANY**

"Article VI, Section 2. The Chairman of the Board, or the President, or any Executive Vice-President, or any of the Senior Vice-Presidents or Vice-Presidents specially authorized so to do by the Board of Directors or by the Executive Committee, shall have power, by and with the concurrence of the Secretary or any one of the Assistant Secretaries, to appoint Resident Vice-Presidents, Assistant Vice-Presidents and Attorneys-in-Fact as the business of the Company may require, or to authorize any person or persons to execute on behalf of the Company any bonds, undertaking, recognizances, stipulations, policies, contracts, agreements, deeds, and releases and assignments of judgements, decrees, mortgages and instruments in the nature of mortgages,...and to affix the seal of the Company thereto."

**CERTIFICATE**

I, the undersigned, Assistant Secretary of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, and the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, do hereby certify that the foregoing Power of Attorney is still in full force and effect on the date of this certificate; and I do further certify that the Vice-President who executed the said Power of Attorney was one of the additional Vice-Presidents specially authorized by the Board of Directors to appoint any Attorney-in-Fact as provided in Article VI, Section 2, of the respective By-Laws of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, and the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY.

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at a meeting duly called and held on the 10th day of May, 1990 and of the Board of Directors of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at a meeting duly called and held on the 5th day of May, 1994.

RESOLVED: "That the facsimile or mechanically reproduced seal of the company and facsimile or mechanically reproduced signature of any Vice-President, Secretary, or Assistant Secretary of the Company, whether made heretofore or hereafter, wherever appearing upon a certified copy of any power of attorney issued by the Company, shall be valid and binding upon the Company with the same force and effect as though manually affixed."

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seals of the said Companies,

this \_\_\_\_\_ day of \_\_\_\_\_, **SEP 29 2011**



Assistant Secretary



**PROPOSER/CONTRACTOR/VENDOR/PROPOSER DISCLOSURE**

\_\_\_\_\_  
Bidding Entity's/ Proposer's Name

\_\_\_\_\_  
Date this form was completed

\_\_\_\_\_  
Address

(\_\_\_\_) \_\_\_\_\_  
Telephone Number

\_\_\_\_\_  
City, State, Zip Code

\_\_\_\_\_  
Signature of Officer/Owner

Section 20-69, D.R.M.C. requires the disclosure of the name of each officer, director, shareholder who owns or controls 5% or more of the business entity, principal, and owner of each bidding or proposing entity, AND either (1) disclosure of the names of the spouses of those individuals and the names of their children under the age of eighteen (18), or (2) a statement in lieu of the disclosure of the names of such spouses and children as set forth below in the "Certified Statement in Lieu of Disclosure." The names of officers, directors, 5% shareholders, principals and owners must be disclosed in either event. Required disclosures also include the names of any subcontractor/supplier receiving more than \$100,000.00 of work and the names of any unions with which the Proposer/proposer has a collective bargaining agreement. This page may be photocopied if additional space is required.

The individuals listed below are disclosed as having the noted relationship with the business entity/proposer listed above. Show appropriate letter in the box to the left. Use center box for relationship to another line number: A=Officer, B=Director, C=Principal, D=Owner, E=Controller of 5% or more of the stock, F=Spouse, G=Child under age 18, H=Subcontractor, I=Supplier, J=Union. Identify with an asterisk (\*) all listed persons who have made a contribution or contribution in-kind, as defined by Section 15-32, D.R.M.C., within the last five years.

1.		9.
2.		10.
3.		11.
4.		12.
5.		13.
6.		14.
7.		15.
8.		16.

THIS IS PAGE 1 OF 2 PAGES

**PROPOSER/CONTRACTOR/VENDOR/PROPOSER CERTIFIED STATEMENT  
IN LIEU OF DISCLOSURE OF NAMES OF SPOUSES AND CHILDREN**

I hereby certify that, except as identified by an asterisk above, no officer, director, shareholder who owns or controls 5% or more of the business entity, principal, or owner or his or her spouse or child under eighteen years of age has made a contribution, as defined at Section 15-32 D.R.M.C., or a contribution in-kind, as defined at Section 15-32 D.R.M.C., to a candidate, as defined at Section 15-32 D.R.M.C., during the last five years.

---

Signature of Officer/Owner of Bidding/Proposing Entity

**CITY AND COUNTY OF DENVER**

**DEPARTMENT OF AVIATION**

**NOTICE TO APPARENT SELECTED PROPOSER**

Date:

To:

The Manager of Aviation, having considered the Proposals submitted for the construction of Contract No.201102006, ON-CALL CONSTRUCTION SERVICES 2012-13 Terminal Roadway & Garage Repairs, Denver International Airport, as set forth in detail in the Contract Documents for the City and County of Denver, Colorado and it appearing that your Proposal is fair, equitable and in the best interest of said City and County.

In accordance with the terms of the Contract Documents, you are required to execute the formal Contract and furnish the required Performance Bond and insurance certificates within ten (10) consecutive calendar days from and including the date of this Notice. In addition, you are required to submit the EEO information described in IB-23 before a Notice to Proceed may be issued.

The proposal security submitted with your Proposal will be returned upon execution of the Contract, the City's receipt of the required Performance and Payment Bonds and insurance certificates, and, if required, City Council approval of the contract. If you should fail to execute the Contract and furnish the Performance Bonds, and insurance certificate within the time limit specified, said proposal security will be retained by the City and County of Denver as liquidated damages, and not as a penalty, for the delay and extra work caused thereby.

All construction contracts made and entered into by the City and County of Denver are subject to applicable City and/or Federal Affirmative Action and Equal Employment Opportunity Rules and Regulations, and each contract requiring payment by the City of One-half Million Dollars (\$500,000.00) or more shall first be approved by the City Council acting by Ordinance and in accordance with Section 3.2.6 of the Charter of the City and County of Denver.

Prior to issuance of a Notice to Proceed, all Affirmative Action and Equal Employment Opportunity requirements must be completed. Additional information may be obtained by calling (303) 342-2200.

CITY AND COUNTY OF DENVER.

By \_\_\_\_\_  
Manager of Aviation

**N O T I C E   T O   P R O C E E D**

TO:

Date:

Ladies and Gentlemen:

You are hereby authorized and directed to proceed on this date with the work of constructing the work in Task Order No. \_\_\_\_\_, Contract 201102006 On-Call Construction Services 2012-13 Terminal Roadways & Garage Repairs, Denver International Airport, Denver, CO, as set forth in detail in the Contract Documents for the City and County of Denver.

The proposal security submitted with your proposal is herewith returned to you.

CITY AND COUNTY OF DENVER

---

Kim Day,  
Manager of Aviation

cc: Greg Hegarty, Nathan Jones, Leah Sullivan, Mike Steffens, Reginald Norman, Marie Surratt, Helen Berkman, Anthony Lincoln, Candace Brown, Doug Schellinger, File

**CITY AND COUNTY OF DENVER**

**DEPARTMENT OF AVIATION**

**FINAL RECEIPT**

**Denver, Colorado**

\_\_\_\_\_, 201\_

Received this date from the City and County of Denver, as full and final payment of the cost of construction pursuant to Task Order \_\_\_\_\_ under Contract No. 201102006, ON-CALL CONSTRUCTION SERVICES 2012-13 Terminal Roadway & Garage Repairs, Denver International Airport, Denver, Colorado, provided for in the foregoing Contract, \_\_\_\_\_

\_\_\_\_\_ Dollars and \_\_\_\_\_ Cents (\$ \_\_\_\_\_), in cash, being the remainder of the full amount accruing to the undersigned by virtue of said Contract; said cash also covering and including full payment for the cost of all extra work and material furnished by the undersigned in the construction of said improvements, and all incidentals thereto, and the undersigned hereby releases said City and County from all claims whatsoever growing out of said Work Order under said Contract.

And these presents are to certify that all persons doing work upon or furnishing materials for said improvements under the foregoing Work Order under said Contract have been paid in full.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# CONTRACT

**THIS CONTRACT**, made and entered into as of the date indicated on the City signature page below, by and between the **CITY AND COUNTY OF DENVER**, a municipal corporation of the State of Colorado, hereinafter referred to as the "CITY", Party of the First Part, and **JOHN ROHRER CONTRACTING COMPANY, INC.**, a corporation organized and existing under and by virtue of the laws of the State of MISSOURI, hereinafter referred to as the "CONTRACTOR", Party of the Second Part;

## WITNESSETH

**WHEREAS**, the City, for at least three (3) consecutive days, advertised that sealed proposals would be received for furnishing all labor, tools, supplies, equipment, materials and everything necessary and required for the construction and installation of task orders issued under Contract No. 201102006, ON-CALL CONSTRUCTION SERVICES 2012-13 Terminal Roadway and Garage Repairs, Denver International Airport;

**WHEREAS**, proposals to said advertisement have been received by the Manager of Aviation, who has recommended that a contract for said work be made and entered into with the above named Contractor who was the best, responsive, qualified proposer therefore; and

**WHEREAS**, said Contractor is now willing and able to perform all of said work in accordance with the Contract Documents and its proposal;

**NOW, THEREFORE**, for and in consideration of the compensation to be paid the Contractor, the mutual agreements hereinafter contained, and subject to the terms hereinafter stated, it is mutually agreed as follows:

**ARTICLE I - CONTRACT DOCUMENTS**: It is agreed by the parties hereto that the following list of instruments, drawings and documents which are attached hereto and bound herewith or incorporated herein by reference constitute and shall be referred to either as the Contract Documents or the Contract, and all of said instruments, drawings and documents taken together as a whole constitute the Contract between the parties hereto, and they are as fully a part of this agreement as if they were set out verbatim and in full herein:

- Advertisement of Notice of Invitation for Proposals
- Instructions to Proposers
- Addenda (if any)
- Proposal Forms
  - Proposal letter
  - Schedule of Prices and Quantities
  - Proposal Data Forms
  - SBE
- Notice to Apparent Low Proposer
- Contract
- Proposal Performance Bond
- Payment & Performance Bond
- Notice to Proceed
- Form of Final Receipt
- Construction Contract General Conditions

# CONTRACT

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- Notice to Apparent Low Proposer
- Contract
- Proposal Performance Bond
- Payment & Performance Bond
- Notice to Proceed
- Form of Final Receipt
- Construction Contract General Conditions

Special Conditions  
Prevailing wage schedules  
Insurance certificate(s)  
Equal Employment Opportunity Provisions  
Technical Specifications  
Contract Drawings  
Approved Shop Drawings  
Change Directives  
Task Orders  
Change Orders

**ARTICLE II - SCOPE OF WORK:** The Contractor agrees to and 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 said Contract Documents.

**ARTICLE III - TERMS OF PERFORMANCE:** The Contractor agrees to begin the performance of the work required under this Contract within ten (10) days after being notified to commence work by the Deputy Manager of Aviation – Planning and Development and agrees to fully complete the Work in its entirety within the time frame established for each Task. The entire contract shall be complete no later than 730 consecutive calendar days from the date of said Notice to Proceed. This period of performance is also referred to as Contract Time. The Contractor is not authorized to commence work prior to its receipt of the Notice to Proceed.

**ARTICLE IV - LIQUIDATED DAMAGES:** It is understood and agreed by and between the City and the Contractor that, if the Contractor fails to achieve Substantial Completion of the Work within the Contract Time or fails to substantially complete the Work described in a Milestone Area within the time set forth in the Special Conditions or causes Disruptions as 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 the 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 or causes Disruptions as set forth in the Special Conditions shall be those amounts listed in the Special Conditions. If the 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 the Contractor. Additional provisions relating to liquidated damages are set forth in the Construction Contract General Conditions and Special Conditions.

**ARTICLE V - TERMS OF PAYMENT:** The City agrees to pay the Contractor for the performance and completion of all of the Work as required by the Contract Documents, and the Contractor agrees to accept as its full and only compensation therefor, amounts properly invoiced and approved in accordance with the provisions of the Contract Documents up to a total amount not exceeding **TWELVE MILLION AND NO/100 DOLLARS (\$12,000,000.00)**. ALC

Payments will be made to the Contractor in accordance with the City's Prompt Payment Ordinance, D.R.M.C., Section 20-107, et. seq., subject to the maximum contract amount stated above. Contractor agrees that interest and late fees shall be payable by the City hereunder only to the extent authorized and provided for in the City's Prompt Payment Ordinance.



Payment hereunder 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 and otherwise lawfully made available for the purposes of this Contract from the City and County of Denver Airport System, Operations and Maintenance and Capital Improvement 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.

**ARTICLE VI - DISPUTES:** It is agreed and understood by the parties hereto that disputes regarding this contract shall be resolved by administrative hearing under procedures described in Revised Municipal Code Section 5-17.

**ARTICLE VII - 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.

**ARTICLE VIII - 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.

**ARTICLE IX - ASSIGNMENT:** The Contractor shall not assign the whole or any part of its duties, rights, and interests in this Contract without first obtaining the written consent of the Manager.

**ARTICLE X - APPROVALS:** In the event this Contract calls for the payment by the City of Five Million Dollars (\$5,000,000.00) or more, approval by the Board of Councilmen of the City and County of Denver, acting by Ordinance 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.

**ARTICLE XI - JOINT VENTURE:** If the 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 the Contractor which are set forth in the Contract.

**ARTICLE XII - NO DISCRIMINATION IN EMPLOYMENT:** In connection with the performance of work under this Contract, the Contractor agrees not to refuse to hire, discharge, promote or demote, or to discriminate in matters of compensation against any person otherwise qualified, solely because of race, color, religion, national origin, gender, age, military status, sexual orientation, gender variance, marital status, or physical or mental disability; and the Contractor further agrees to insert the foregoing provision in all subcontracts hereunder.

**ARTICLE XIII – DEFENSE AND INDEMNIFICATION:**

- A. To the fullest extent permitted by law, the Contractor hereby agrees to defend, indemnify, and hold harmless City, its appointed and elected officials, agents and employees 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. Contractors 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. 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. Contractor's indemnification obligation hereunder is not limited to third party claims.
- E. This defense and indemnification obligation shall survive the expiration or termination of this Contract.

**ARTICLE XIV - WAIVER OF CRS 13-20-801, et seq.:** Notwithstanding any other provision of this Contract, the Contractor specifically waives all of the provisions of Colorado Revised Statutes §§ 13-20-801 – 80 as they may relate to the Contractor's performance under this Contract.

**ARTICLE XV - COORDINATION OF SERVICES:** The Contractor agrees to perform its work under this Contract in accordance with the operational requirements of DIA, and all work and movement of personnel or equipment on areas included within the DIA site shall be subject to the regulations and restrictions established by the City or its authorized agents.

**ARTICLE XVI - COMPLIANCE WITH ALL LAWS AND REGULATIONS:** All of the work performed under this Contract by the Consultant shall comply with all applicable laws, rules, regulations and codes of the United States and the State of Colorado, and with the charter, ordinances and rules and regulations of the City and County of Denver.

**ARTICLE XVII – PROMPT PAY:** The Contractor is subject to D.R.M.C. Section 20-112 wherein the Contractor is to pay its subcontractors in a timely fashion. A payment is timely if it is mailed to the subcontractor no later than seven days after receipt of any payment from City. Any late payments are subject to a late payment penalty as provided for in the prompt pay ordinance (Section 20-107 through 20-118).

**ARTICLE XVIII – COLORADO OPEN RECORDS ACT:** The Contractor acknowledges that the City is subject to the provisions of the Colorado Open Records Act, Colorado Revised Statutes §24-72-201 et seq., and the 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 the Contractor asserts is confidential and exempt from disclosure. Any other provision of this Contract notwithstanding, including exhibits, attachments and other documents incorporated into this Contract by reference, all materials, records and information provided by the Contractor to the City shall be considered confidential by the City only to the extent provided

in the Open Records Act, and the Contractor agrees that any disclosure of information by the City consistent with the provisions of the Open Records Act shall result in no liability of the City. **IN WITNESS WHEREOF**, the parties have caused this Agreement to be executed at Denver, Colorado as of the date indicated on the City signature page.

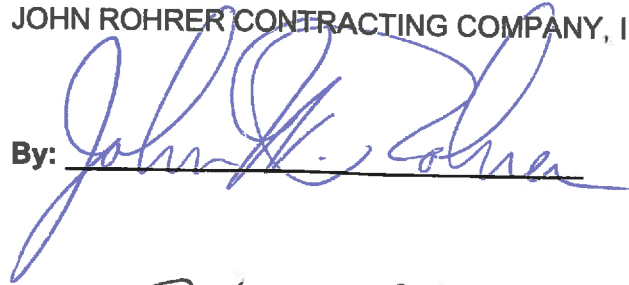
**Contract Control Number:**

**201102006**

**Vendor Name:**

**JOHN ROHRER CONTRACTING COMPANY, INC.**

**By:**



**Name:**

John W Rohrer

(please print)

**Title:**

President

(please print)

**ATTEST: (if required)**

**By:**



**Name:**

Analee A Lania

(please print)

**Title:**

Secretary / Treasurer

(please print)

**Contract Control Number:**

**Vendor Name:**

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

SEAL

**CITY AND COUNTY OF DENVER**

ATTEST:

By \_\_\_\_\_

\_\_\_\_\_

APPROVED AS TO FORM:

REGISTERED AND COUNTERSIGNED:

By \_\_\_\_\_

By \_\_\_\_\_

By \_\_\_\_\_



in the Open Records Act, and the Contractor agrees that any disclosure of information by the City consistent with the provisions of the Open Records Act shall result in no liability of the City. **IN WITNESS WHEREOF**, the parties have caused this Agreement to be executed at Denver, Colorado as of the date indicated on the City signature page.

**Contract Control Number:** 201102006

**Vendor Name:** JOHN ROHRER CONTRACTING COMPANY, INC.

**By:** 

**Name:** John W Rohrer

(please print)

**Title:** President

(please print)

**ATTEST: (if required)**

**By:** 

**Name:** Analee A Lanio

(please print)

**Title:** Secretary / Treasurer

(please print)

**PERFORMANCE AND PAYMENT BOND**

**KNOW ALL MEN BY THESE PRESENTS**, that we, the undersigned JOHN ROHRER CONTRACTING COMPANY, INC., a corporation organized under the laws of the State of MISSOURI, hereinafter referred to as the "Contractor" and FIDELITY AND DEPOSIT COMPANY OF MARYLAND, a corporation organized under the laws of the State of MARYLAND, and authorized to transact business in the State of Colorado, 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 ~~ONE HUNDRED THOUSAND AND NO/100 Dollars (\$100,000.00)~~ <sup>\*Five Million Six Hundred Eighty-Six Thousand Six Hundred Twenty-Nine and No/100 Dollars (\$5,686,629.00)</sup> 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.

\*Five Million Six Hundred Eighty-Six Thousand Six Hundred Twenty-Nine and No/100 Dollars (\$5,686,629.00)

**WHEREAS**, the above bounden Contractor has entered into a written contract with the aforesaid City for furnishing all labor and tools, supplies, equipment, superintendence, materials and everything necessary for and required to do, perform and complete the construction of Contract No. 201102006, ON-CALL CONSTRUCTION SERVICES 2012-13 Terminal Roadway & Garage Repairs, Denver International Airport, in accordance with the Technical Specifications, Contract Drawings, Task Orders, and all other Contract Documents therefore, 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 and Payment 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. At all times promptly makes 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 said 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 law; and
3. 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.

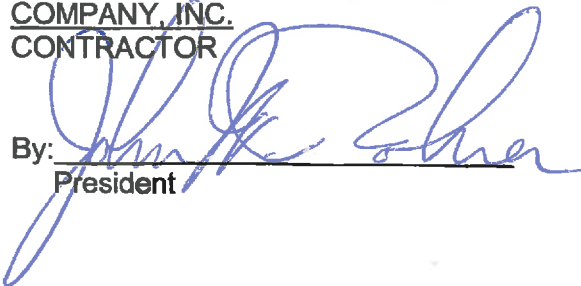
**IN ADDITION**, if said Contractor fails to duly pay for any labor, materials, team hire, sustenance, provisions, provender, or any other supplies used or consumed by said Contractor or its subcontractors in its performance of the work contracted to be done or fails to pay any person who supplies rental 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 at the rate of eight percent per annum.

**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 11th day of November, 2011.

**JOHN ROHRER CONTRACTING  
COMPANY, INC.  
CONTRACTOR**

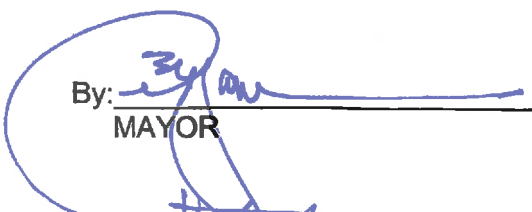
By:   
President

**FIDELITY AND DEPOSIT COMPANY  
OF MARYLAND** 1400 American Lane, Tower I, 18th Floor  
SURETY Schaumburg, IL 60196-1056  
(847) 605-6000

By:   
Attorney-in-Fact, Debra J. Scarborough

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

**CITY AND COUNTY OF DENVER**

By:   
MAYOR

By:   
Manager of Aviation

**APPROVED AS TO FORM:**

DOUGLAS J. FRIEDNASH, Attorney for the  
City and County of Denver

By:   
Assistant City Attorney



**Power of Attorney  
FIDELITY AND DEPOSIT COMPANY OF MARYLAND  
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY**

KNOW ALL MEN BY THESE PRESENTS: That the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, and the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, corporations of the State of Maryland, by FRANK E. MARTIN JR., Vice President, and GERALD F. HALEY, Assistant Secretary, in pursuance of authority granted by Article VI, Section 2, of the By-Laws of said Companies, which are set forth on the reverse side hereof and are hereby certified to be in full force and effect on the date hereof, does hereby nominate, constitute and appoint **Debra J. SCARBOROUGH, Claudia MANDATO, Christy M. MCCART, Mary T. FLANIGAN, Kathleen M. COEN, Kathy L. FAGAN, Nancy A. CLOVER, Laura M. MURREN and Charissa D. LECUYER**, all of Kansas City, Missouri, EACH its true and lawful agent and Attorney-in-Fact, to make, execute, seal and deliver for and on its behalf as surety, and as its act and deed: **any and all bonds and undertakings**, and the execution of such bonds or undertakings in pursuance of these presents, shall be as binding upon said Companies, as fully and amply, to all intents and purposes, as if they had been duly executed and acknowledged by the regularly elected officers of the Company at its office in Baltimore, Md., in their own proper persons. This power of attorney revokes that issued on behalf of Melissa D. EVANS, Debra J. SCARBOROUGH, Claudia MANDATO, Christy M. MCCART, Mary T. FLANIGAN, Kathleen M. COEN, Kathy L. FAGAN, Nancy A. CLOVER, Laura M. MURREN, Charissa D. LECUYER, dated February 8, 2011.

The said Assistant Secretary does hereby certify that the extract set forth on the reverse side hereof is a true copy of Article VI, Section 2, of the By-Laws of said Companies, and is now in force.

IN WITNESS WHEREOF, the said Vice-President and Assistant Secretary have hereunto subscribed their names and affixed the Corporate Seals of the said FIDELITY AND DEPOSIT COMPANY OF MARYLAND, and the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, this 1st day of August, A.D. 2011.

ATTEST:

**FIDELITY AND DEPOSIT COMPANY OF MARYLAND  
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY**



*Gerald F. Haley*

*Frank E. Martin Jr.*

*Gerald F. Haley* Assistant Secretary      *Frank E. Martin Jr.* Vice President

State of Maryland }  
City of Baltimore } ss:

On this 1st day of August, A.D. 2011, before the subscriber, a Notary Public of the State of Maryland, duly commissioned and qualified, came FRANK E. MARTIN JR., Vice President, and GERALD F. HALEY, Assistant Secretary of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, and the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, to me personally known to be the individuals and officers described in and who executed the preceding instrument, and they each acknowledged the execution of the same, and being by me duly sworn, severally and each for himself depose and saith, that they are the said officers of the Companies aforesaid, and that the seals affixed to the preceding instrument is the Corporate Seals of said Companies, and that the said Corporate Seals and their signatures as such officers were duly affixed and subscribed to the said instrument by the authority and direction of the said Corporations.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Official Seal the day and year first above written.



*Constance A. Dunn*

*Constance A. Dunn* Notary Public  
My Commission Expires: July 14, 2015

**EXTRACT FROM BY-LAWS OF FIDELITY AND DEPOSIT COMPANY OF MARYLAND**

"Article VI, Section 2. The Chairman of the Board, or the President, or any Executive Vice-President, or any of the Senior Vice-Presidents or Vice-Presidents specially authorized so to do by the Board of Directors or by the Executive Committee, shall have power, by and with the concurrence of the Secretary or any one of the Assistant Secretaries, to appoint Resident Vice-Presidents, Assistant Vice-Presidents and Attorneys-in-Fact as the business of the Company may require, or to authorize any person or persons to execute on behalf of the Company any bonds, undertaking, recognizances, stipulations, policies, contracts, agreements, deeds, and releases and assignments of judgements, decrees, mortgages and instruments in the nature of mortgages,...and to affix the seal of the Company thereto."

**EXTRACT FROM BY-LAWS OF COLONIAL AMERICAN CASUALTY AND SURETY COMPANY**

"Article VI, Section 2. The Chairman of the Board, or the President, or any Executive Vice-President, or any of the Senior Vice-Presidents or Vice-Presidents specially authorized so to do by the Board of Directors or by the Executive Committee, shall have power, by and with the concurrence of the Secretary or any one of the Assistant Secretaries, to appoint Resident Vice-Presidents, Assistant Vice-Presidents and Attorneys-in-Fact as the business of the Company may require, or to authorize any person or persons to execute on behalf of the Company any bonds, undertaking, recognizances, stipulations, policies, contracts, agreements, deeds, and releases and assignments of judgements, decrees, mortgages and instruments in the nature of mortgages,...and to affix the seal of the Company thereto."

**CERTIFICATE**

I, the undersigned, Assistant Secretary of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, and the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, do hereby certify that the foregoing Power of Attorney is still in full force and effect on the date of this certificate; and I do further certify that the Vice-President who executed the said Power of Attorney was one of the additional Vice-Presidents specially authorized by the Board of Directors to appoint any Attorney-in-Fact as provided in Article VI, Section 2, of the respective By-Laws of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, and the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY.

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at a meeting duly called and held on the 10th day of May, 1990 and of the Board of Directors of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at a meeting duly called and held on the 5th day of May, 1994.

RESOLVED: "That the facsimile or mechanically reproduced seal of the company and facsimile or mechanically reproduced signature of any Vice-President, Secretary, or Assistant Secretary of the Company, whether made heretofore or hereafter, wherever appearing upon a certified copy of any power of attorney issued by the Company, shall be valid and binding upon the Company with the same force and effect as though manually affixed."

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seals of the said Companies,

this \_\_\_\_\_ day of NOV 18 2011, \_\_\_\_\_.



Assistant Secretary

ENDORSEMENT

This endorsement forms part of Performance and Payment Bond Bond Number 09072599 issued to John Rohrer Contracting Company, Inc. effective November 11, 2011, in the amount of Five Million Six Hundred Eighty-Six Thousand Six Hundred Twenty-Nine and No/100 Dollars (\$5,686,629.00) in favor of City and County of Denver.

It is hereby understood and agreed that the bond number is changed

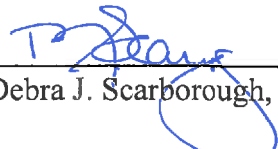
From: 09072599\_\_\_\_\_

To: 09072589\_\_\_\_\_

Effective the 11th day of November, 2011.

Signed, Sealed and Dated this 18th day of November, 2011.

Fidelity and Deposit Company of Maryland  
Surety

By:   
Debra J. Scarborough, Attorney-in-Fact

CITY AND COUNTY OF DENVER

DEPARTMENT OF AVIATION  
DEPARTMENT OF PUBLIC WORKS

STANDARD SPECIFICATIONS FOR CONSTRUCTION

**CONSTRUCTION CONTRACT GENERAL CONDITIONS**  
1999 EDITION

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The General Contract Conditions are separately bound  
and may be purchased as described in the  
Special Conditions

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1999 EDITION

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**SPECIAL CONDITIONS**

**SC-1 CONSTRUCTION CONTRACT GENERAL CONDITIONS**

The Construction Contract General Conditions which constitute a part of the Contract Documents are set forth 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," 1999 Edition, the Table of Contents to which is bound herein (which may be informally referred to as the "Orange Book"). The General Conditions book is available for purchase for \$10.00 per copy at the following locations during the business hours stated, Monday through Friday, excluding holidays:

Office of the Cashier Wellington E. Webb Municipal Office Bldg. 201 West Colfax Avenue Denver, CO 80202 7:30 A.M. to 4:30 P.M.	Business Management Services Department of Aviation Rm 8810 Airport Office Bldg. 8500 Peña Boulevard Denver, CO 80249 8:00 A.M. to 4:00 P.M.
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The City will not supply any copies of the General Contract Conditions to the Contractor at City expense; however, the Contractor may access the General Conditions on the Internet at <http://www.flydenver.com/contracts>.

**SC-2 CONSTRUCTION DOCUMENTS**

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

<u>Document</u>	<u>Quantity</u>
Volumes 1 – 2 (See the "Master Table of Contents," page TOC-ii, for the content of these volumes)	2 copies
Contract Drawings	1 copy
Change Orders and Change Directives	1 copy
Task Orders	1 copy

Additional copies of the foregoing documents will be furnished to the Contractor at the Contractor's expense. The Contractor will be responsible for supplying all subcontractors with copies of the Contract Documents at its expense.

In addition, any proposal requests (Task Order) submitted hereunder, including any plans, specifications, drawings or other documents attached thereto and any Contractor Pricing Proposals submitted in response to a Task Order and any Final Task Order issued hereunder shall be included as Contract documents and incorporated herein by reference as they may be hereinafter generated.

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

The second sentence of GC 201 is amended to read: "The unit responsible for this management and control is the Planning & Development Offices under the supervision of the Deputy Manager of Aviation for Planning and Development."

**SC-4 CITY LINE OF AUTHORITY AND CONTACTS**

In accordance with General Condition 214, the City's line of authority for administration of this Contract is:

1. Manager of Aviation (the "Manager" under G.C. 112). The Manager of Aviation is Kim Day, Executive Office, 9<sup>th</sup> Floor, Airport Office Building, 8500 Peña Boulevard, Denver, CO 80249.
2. Deputy Manager of Aviation for Planning and Development (the "Deputy Manager" under G.C. 109), who reports to the Manager. The Deputy Manager is David Rhodes, Planning and Development Office, 7<sup>th</sup> Floor, Airport Office Building, 8500 Peña Boulevard, Denver, CO 80249.
3. Assistant Manager of Aviation for Planning & Development (the "Assistant Manager"), reports to the Deputy Manager. The Project Manager reports to the Assistant Manager. The Assistant Manager is Mike Steffens, Planning & Development Division, 7<sup>th</sup> Floor, Airport Office Building, 8500 Peña Boulevard, Denver, CO 80249, phone 303-342-2200, extension 2811.
4. Project Manager, the City representative who has day to day administrative responsibility of this Contract, and who reports to the Deputy Manager. 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: William Shirk, Planning & Development Offices, 7<sup>th</sup> Floor, Airport Office Building, 8500 Peña Boulevard, Denver, CO 80249, phone 303-342-2606.

The Manager may from time to time substitute a different City official as the designated "Deputy Manager" hereunder, and any such change will be effective upon the issuance of written notice to the Contractor which identifies the successor Deputy Manager. The Deputy Manager 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 CONTRACTOR PERFORMANCE; SUBCONTRACTING**

With respect to General Condition 501, no more than **60%** of the Work may be subcontracted.

**SC-6 COOPERATION WITH OTHERS**

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 FAA or City requirements while performing work on DIA.

**SC-7 PROSECUTION AND COMPLETION OF THE WORK:**

The Work to be performed under the Contract is issued as Tasks. Task #1 is identified in the plans and specifications attached and incorporated into this Contract (and included in the RFP). The schedule for Task #1 is as set forth below. The City anticipates that Task #2 will be issued in 2013 and the contract schedule for that work will be the same as described for Task #1. The work and the schedule for Task #2 shall be finalized after the successful completion of Task #1 and subject to funding approval for the Task #2 work.

This Contract Task #1 has three time related performance requirements that are described as follows:

- A. Task #1 requires that the Contractor shall complete the Work within 240 calendar days from date of Notice to Proceed.
- B. Task #1 requires that the Work must be complete by or before November 1, 2012.
- C. Task #1 requires that the Contractor complete portions of the work as described in the Milestones as noted below.

The Work to be performed under the Task #1 is divided into Milestones as follows:

<u>Milestone (MS)</u>	<u>Date of Completion (or, days after NTP)</u>
MS1. Provide complete Construction schedule	7 days after NTP
MS2. Completion of Mod 1 East	80 days after NTP
MS3. Completion of Mod 2 East	160 days after NTP
MS4. Completion of Mod 3 East	240 days after NTP

Task #1 requires that only one Module of the Terminal Roadway be under construction for repair at a time. Should the City initiate Task #2, the same milestones shall apply.

At a time deemed appropriate by the DIA Project Manager, the DIA Project Manager will evaluate the Contractor's progress to determine whether the Work for the Task is progressing at a rate sufficient to meet the intermediate and final milestones of the contract. If the DIA Project Manager believes that the Work is not proceeding satisfactorily or may not be completed in the allotted time, the DIA Project Manager

shall by letter to the Contractor require the Contractor to employ additional qualified workers at no added cost to the City (DIA), to raise the rate of production to an acceptable level.

If the DIA Project Manager determines that MS 4 cannot be completed by November 1, 2012, the work of MS 4 may be deleted by DIA's Project Manager in his or her sole discretion. As such DIA will not owe any cancellation penalty or any monthly mobilization or overhead cost, lost profit or any other cost or price adjustment of any kind and the Contractor will owe Liquidated Damages as noted below in Special Condition SC-8.

When the work of a Milestone is substantially complete as acknowledged by the DIA Project Manager the Liquidated Damages for the completion of the Milestone will stop.

Since this is a contract for on-call services, the Contractor is not guaranteed nor entitled to the issuance of any additional task orders, and the City is not obligated to issue Task #2 to the Contractor.

The Contractor shall (a) commence work under any issued Task Order within ten (10) calendar days after the date of the Notice to Proceed, (b) prosecute said work diligently, and (c) complete the entire work ready for use no later than the number of calendar days required in the Task Order. The time stated for completion shall include final cleanup of the premises or work site plus such extension or extensions of time as may be granted by the Manager in accordance with the provisions of these General Contract Conditions and Special Contract Conditions.

With respect to any work that is authorized by a Task Order and Notice to Proceed issued prior to the contract completion date, but not completed by that date, the City shall have the option to terminate the work in progress and pay only for that portion of the work satisfactorily completed within the period of performance specified herein or to provide for, in writing, a limited extension of the contract completion date to complete the remaining work. In the event the completion date for a particular Task Order is extended as provided for herein, it shall only allow for consideration of costs that were already agreed upon in a previously issued Task Order(s), and shall not include any modifications to the proposal unit prices or Task Order estimates except those required by Prevailing Wage law, or any additional compensation for extended overhead or impact costs.

For each Task Order submitted to the Contractor for pricing, the Contractor agrees to review and price the Task Order within fourteen (14) consecutive calendar days of the date of such Task Order.

#### **SC-7A TASK ORDER NOTICE TO PROCEED**

Following the issuance of any fully executed Task Order hereunder, a Task Order Notice to Proceed for that particular Task Order will be issued by the Assistant Deputy Manager of Aviation for Planning & Development Division. The Contractor agrees to commence work in accordance with that particular Task Order within ten (10) consecutive calendar days of the date of the Task Order Notice to Proceed; however, no work will commence on any project until such time as the Contractor

has complied with all administrative requirements for that particular project and the Contractor has satisfied all bonding requirements for the particular Task Order (**SC-25 PERFORMANCE AND PAYMENT BOND**). Thereafter the Contractor shall prosecute the work to be accomplished under the Task Order at such time and place as the Task Order directs and shall fully complete in every detail all specified work in accordance with the terms and conditions of the Task Order and the provisions of these General Contract Conditions and Special Contract Conditions.

## **SC-8 LIQUIDATED DAMAGES**

### **A. For Schedule**

The Contractor's failure to perform or failure to meet the schedule will result in Liquidated Damages being assessed and deducted by the City from any amounts due the Contractor as follows:

1. Failure to substantially complete the Work described in the Milestones as outlined above in SC-7 PROSECUTION AND COMPLETION OF THE WORK as follows:

MS 1.	\$1000.00 per day until submitted in proper contract format
MS 2.	\$2000.00 per day until the work in Mod 1 is complete (a/p DIA PM)
MS 3	\$2000.00 per day until the work in Mod 2 is complete (a/p DIA PM)
MS 4	\$2000.00 per day until the work in Mod 3 is complete (a/p DIA PM)

The Liquidated Damages for MS 1 shall continue until the schedule requirement is satisfied.

2. Failure to perform to the schedule such that the DIA Project Manager is required to eliminate a portion of the scope of work so that the work is complete no later than November 1, 2012.

If the City deletes the work to be accomplished by MS 4 because of the Contractor's failure to satisfactorily meet the schedule, as described in SC-7, the parties agree that the amount of Liquidated Damages shall be \$30,000.00 lump sum, which will be due to the City once the DIA Project Manager issues a letter to reduce the scope to comply with the November 1, 2012 completion constraint.

3. If the Contractor fails to achieve substantial completion of the work within the Contract time the Contractor shall be liable to the City for liquidated damages at the rate of \$2000.00 per day until substantial completion is achieved.

Article IV of the Contract and General Contract Condition 602 provide additional terms and conditions regarding payment and withholding of liquidated damages.

### **B. For Disruption of Airport Activities**

If DIA determines that the Contractor has disrupted the Airport Operations as described below and in the Technical Specifications, section 01014, the Contractor

shall be liable to the City for liquidated damages at the rates noted below per incident per day or per hour for each incident until the issue is corrected.

Contractor caused disruptions of Airport Operations and the required Liquidated Damages are as follows:

- |   | <u>Amount per incident</u> |
|---|----------------------------|
| 1. Disruption of Fire Alarm – First Incident  | \$5000.00                  |
| 2. Disruption of Fire Alarm – All other incidents   | \$10,000.00                |
| 3. Disruption of Airline Baggage Operations– First Incident -   | \$5000.00 per hour         |
| 4. Disruption of Airline Baggage Operations -All other incidents  | \$10,000.00 per hour.      |
| 5. Disruption of Airport Operations by introduction of dust, smoke, noise, water, chemicals or any offensive odors or fumes or any other disruption from the construction activity into the Terminal, any outdoor public area or baggage area that causes complaints from the building occupants, operations or the customers – First Incident                  | \$1,000.00/ incident.      |
| 6. Disruption of Airport Operations by introduction of dust; smoke, noise, water, chemicals or any offensive odors or fumes or any other disruption from the construction activity into the Terminal or any outdoor public area or baggage area that causes complaints from the building occupants, operations or the customers – Any incident after the first. | \$5,000.00/ incident.      |
| 7. Should any of the disruptions described in items 5 or 6 above result in the evacuation or unplanned closure of a portion of the building or outdoor public space or baggage handling area, this would result in a First Incident Liquidated Damage of  | \$5,000 per hour.          |

At any time after the occurrence of the first incident, DIA may determine that by causing any of these disruptions, the Contractor is not properly managing the work and DIA may, in its sole discretion, terminate the entire Contract for Cause under General Contract Condition section 2201. In the event of such termination, the Contractor shall not be entitled to any cancellation penalty or additional compensation, and the Contractor shall be liable to DIA for all costs and expenses of taking over and completing the work as provided in General Contract Condition section 2201.

Article IV of the Contract and General Condition 602 provide additional terms and conditions regarding payment and withholding of liquidated damages.

#### **SC-9 PRECONSTRUCTION MEETING**

Prior to the issuance of the first Task Order and the start of such work, the Contractor, and the City shall meet and resolve any and all issues that may pertain to the understanding of the terms and conditions of the contract. Individual pre-construction meetings will be held at the City's discretion on each issued Task Order prior to issuance of a Notice to Proceed for that Task Order.



## SC-10 SECURITY AND PERSONNEL ACCESS

The Contractor shall conduct all its activities at the Airport in compliance with the Airport security system, which is administered by the 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, including those regarding security. 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 from the Airport Access Services Office and must display same upon entering and be prepared to display same while onsite. Any employee, subcontractor or supplier who violates such rules may be subject to revocation of his access authorization, including authorization for access to secured areas.

The security status of the Airport is subject to change without notice. These contract 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. The Contractor shall take **immediate steps** to comply with those security modifications.

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 to the City, at contract completion or termination, or upon demand by the City, all access keys issued to it by the City to security critical 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 all the City's costs, including the City's labor costs for employees, incurred in re-coring doors and any other work which is required to prevent compromise of the Airport security system. In order to collect such costs hereunder, the City may withhold funds in such amount from any amounts due and payable to the Contractor under this Contract.

## SC-11 CONSTRUCTION ACCESS

The work sites may be located at the Denver International Airport and the Pena Blvd. Transportation corridor. The Contractor shall have access to the work site pursuant to instructions given in each Task Order or Notice to Proceed.

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 of its and its subcontractors employees will be the responsibility of the Contractor. The Contract Proposal Amount or 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 requires permission from the Airport Access Services Office. It is not anticipated that the Contractor will need to operate vehicles on the AOA to perform the Work. It is anticipated that access will be required to the secure baggage handling area of the Terminal. Only direct construction support vehicles and/or equipment will be allowed in the contractor's work areas or sites.

**SC-13 VENDORS AND SUPPLIERS**

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

**SC-14 SITE COMMUNICATIONS**

Any site communications at DIA must be approved by DIA Operations.

**SC-15 USE, POSSESSION OR SALE OF ALCOHOL OR DRUGS**

The Contractor and its officers, agents, and employees shall cooperate and comply with the provisions of Executive Order No. 94 and Attachment A 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's barring the Contractor from City facilities or participating in City operations.

**SC-16 ATTORNEY'S FEES**

Colorado Revised Statute 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 and County of Denver 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. 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 one hundred dollars per hour of City Attorney time.

**SC-17 INSURANCE TO BE PROVIDED BY THE CONTRACTOR**

In accordance with the provisions of Title 16 of the General Conditions, the minimum insurance requirements for this contract are set forth in the Sample Insurance Certificate attached to these Special Conditions. 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 coverage's are in effect.

Contractor and sub-contractors shall procure and maintain until all of their obligations have been discharged, including any warranty periods under this Contract are satisfied, 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, his 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 and County of Denver 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, his 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 and County of Denver with certificates of insurance (ACORD form or equivalent approved by CCD) 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 sub-contractors shall be subject to the minimum requirements identified in the Exhibit. All sub-contractors 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 Denver International Airport, Business & Technologies, Airport Office Building, Room 8810, 8500 Pena Boulevard, Denver, Colorado 80249. 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 and County of Denver, its officers, officials and employees, 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, §§ 24-10-101 - 120, C.R.S., or otherwise available to the City and County of Denver, its officers, officials and employees.

**SC-18 SUBCONTRACTOR RELEASES**

The release form referred to in General Condition 907 is attached to these Special Conditions. It is entitled "Denver International Airport Partial Release."

**SC-19 ADDITIONAL AFFIRMATIVE ACTION REQUIREMENTS, FEDERAL PROVISIONS**

NOT USED

**SC-20 APPLICATIONS FOR AND PROGRESS PAYMENTS TO CONTRACTORS**

General Condition 902.3 is amended by the addition of the following:

Where applicable, with respect to any Task Order issued hereunder, progress payments for performance of any work shall be based on completed work estimates and shall be subject to the following requirements:

1. Each estimate of work completed for a Task Order shall contain a list of subcontractor and material invoices for all subcontractors and suppliers and shall be based on the approved schedule of values.
2. Each submitted estimate shall specify the percent of the work complete. This percentage shall be certified by the Project Engineer/Manager or the Consulting Architect or Engineer, as appropriate.
3. Each estimate of work completed shall also specifically identify those MBE/WBE Subcontractors or Suppliers that the Contractor is utilizing on the Project pursuant to the requirements of Article VII, Division 1 and 3 of Chapter 28, of the D.R.M.C.
4. Each estimate of work completed shall be accompanied by either duplicate sets of verified Contractor's Certifications of Payment, in the format contained in the following Exhibit A, or by verified Partial Release of Contractor forms from each subcontractor and supplier (Form LR-1, Table of Contents). Each estimate of work completed shall also be accompanied by:
  - a. a written schedule of values, which set out the quantities and costs for the Project and
  - b. the Project Engineer/Manager's, or as applicable, Consulting Architect's or Engineer's estimated statement of the percentage of work completed for each line item of cost for which the City has promised to pay the Contractor. The Contractor shall also submit to the Auditor and other appropriate officials of the City, in a timely fashion, all information required by General Contract Condition 893.
5. The estimate of the percentage of estimate of work completed shall constitute

a representation by the Contractor to the City that the work has progressed to the point indicated; that the quality of the work covered by the estimate is in accordance with the Contract Documents; that each obligation covered by the estimate (except as otherwise noted), and the payments required will be used to discharge such obligation unless previously discharged; and that the Contractor is entitled to payment in the amount requested. The Project Engineer/Manager or the Consulting Architect or Engineer, as appropriate, with the assistance of input from the Project Construction Manager, in the event that such has been retained, will also verify the certify the estimate of work completed prior to any acceptance by the City.

6. The Contractor warrants that:
  - a. Title to work covered by an estimate of work completed will pass to the City by incorporation into the completed work;
  - b. Work covered by previous estimates of work completed is free and clear of liens, claims, security interests or encumbrances, hereinafter referred to as "liens", except for any interest created by retainage; and
  - c. No work covered by an estimate of work completed will have been acquired by the Contractor, or any other person or entity performing work at the work site or furnishing materials or equipment for the Project and that no work covered by any estimate is subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or such other person or entity.
7. Approval of an estimate of work completed or actual payment shall not foreclose the right of the City to examine the books and records of the Contractor to determine the correctness and accuracy of any estimate item.
8. Pursuant to General Condition 908, applications for a reduction in retainage must be accompanied by Partial Release of Contractor forms from each subcontractor or supplier (Form LR-1, Table of Contents).
9. Pursuant to General Condition 910, the final estimate for payment shall also be accompanied by Partial Release of Contractor forms from each subcontractor and supplier (Form LR-1, Table of Contents).
10. Receipt of Contractor's Certifications of Payment of Partial Release for Contractors forms by the City hereunder shall not act to impair the City's Obligations imposed by C.R.S. 38-26-107 or successor statute.
11. If the Contractor disputes a subcontractor's and/or supplier's entitlement to a portion of the previous month's payment, the Contractor need not submit a Contractor's Certificate of Payment or Partial Release for Contractors from such subcontractor and/or supplier. However, in lieu of such submittal, the Contractor shall submit to the City duplicate sets of a copy of a written communication from the Contractor to such subcontractor and/or supplier explaining the Contractor's determination not to render payment to such

subcontractor or supplier, together with proof of service of such written communication upon such subcontractor and/or supplier.

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

The requirements of the General Contract Conditions shall apply.

**SC-22 REVISIONS TO G.C. 1102**

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

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

**SC-23 DESCRIPTION OF TASK ORDER**

The Project Manager will provide the Contractor with a description of the services/work to be provided for any Work Request. The Contractor shall respond to the City's request for Task Order Proposal within 2 working days by (1) visiting the proposed work site in the company of the Project Manager or his authorized representative, or (2) establishing verbal contact with the Project Manager or his authorized representative to further define the scope of the work. The Contractor shall then furnish a work plan and price proposal to the Project Manager for each work item request and provide in the proposal an estimate of a completion date and interim milestones. Time for the submittal of the work plan shall be mutually agreed upon by City and Contractor. The Contractor shall submit to the Project Manager requests for site inspections and other investigations as necessary for its preparation of a work plan and proposal.

The work plan and proposal shall indicate, but not be limited to:

- a statement of the work to be accomplished
- discussion of the implementation process to include the method of operation, type of equipment, key personnel and subcontractors
- how quality of materials and workmanship will be established and maintained
- any additional design requirements
- special considerations
- schedule and keep milestones

The work shall be broken down according to CSI Divisions. Proposal line items will include quantities and units of work as well as man-hours and material cost per unit. It shall be subject to negotiation with the Project Manager. Mark-ups on labor,

material, equipment, subcontractors, engineering and testing will applied to agreed to amounts. Costs for performance and payment bonds will be included as a separate item. The City will review the work plan proposal for completeness and negotiate conditions of performance with the Contractor. If suitable conditions of performance including price and time cannot be negotiated, the Task Order and Notice to Proceed will not be executed or if critical, may be performed on a time and material basis with the mark-ups included with this proposal applied. The City may utilize other means to procure the required work at any time.

Prior to submitting a work plan and price proposal, the Contractor shall inspect the work site and its surroundings. Requests for site visits shall be submitted to the Project Manager. For purposes of the contract, it shall be conclusively presumed that the Contractor has made a thorough inspection of the site and has waived the right to alter claim extra payment or time extensions for conditions which would have been evident during that inspection. Because the Proposal 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 the grounds that the nature or amount of work to be done was not understood by the Contractor at the time of submittal of the work plan and price proposal.

**SC-24 FUND AVAILABILITY**

Individual approved Task Orders issued under this contract will obligate funds.

**SC-25 PERFORMANCE AND PAYMENT BOND**

Delete the requirements of General Contract Conditions 1501, 1502 and 1503 for separate bonds. Combined Performance and Payment Bonds in the total amount of all issued Task Orders, provided in the precise form contained in these documents, shall be furnished before any work is undertaken in connection with any Task Order. All other terms and conditions of General Contract Conditions 1501, 1502 and 1503 shall remain in effect.

Additionally, General Contract Condition 1501 shall be amended as follows:

"Before this Contract is executed, the Contractor shall have paid for and furnished to the City a properly completed and executed Combined Performance and Payment Surety Bond, in an amount not less than One Hundred Thousand Dollars and No Cents (\$100,000.00). The Combined Surety Bond shall guarantee the faithful performance of the Contract and shall also guarantee the payment of bills for labor and materials under the Contract.

In the event that the cumulative dollar value of all Task Order(s) issued under the Contract exceeds the amount of the Combined Surety Bond furnished prior to the execution of the Contract, the Contractor shall procure, pay for and furnish to the City a Combined Surety Bond Change Rider, in the proper form, for an amount which is One Hundred percent (100%) of the dollar value of the specified Task Order, that exceeds \$100,000.00. All subsequent Task

Orders contemplated under the Contract shall require separate Combined Surety Bond Change Riders for One Hundred percent (100%) of the dollar value of each Task Order before a Task Order is issued and any work under the Task Order commences.

Any combined Surety Bond Change Riders furnished by the Contractor after the execution of the Contract must be reviewed and approved by the City Attorney prior to issuance of a Task Order and before any work commences”.

## **SC-26 TASK ORDER PROCESS**

### **TASK ORDERS**

Upon review of any Contractor pricing submittal made pursuant to a Work Request, the City may, at its sole discretion, reject the pricing submittal or direct that the work described in the Task Order Proposal and priced by the Contractor be completed by issuance of a Task Order to the Contractor. The City reserves the right to issue such a Task Order, at the price (either lump sum or time and material) and under the terms of the Contractor’s pricing submittal, at any time before the expiration 120 consecutive calendar days from the date the pricing submittal was received by the City. If no Task Order is issued and the pricing submittal is not rejected within this period, the Contractor’s pricing Proposal shall be deemed rejected by the City.

A Task Order shall not issue and no work shall commence until such time as the Contractor executes the Task Order and all designated City officials and the Contractor has submitted a Payment and Performance Bond or Bond Change Rider for the work satisfactory to the City Attorney and the Manager of Aviation.

Upon issuance of a Task Order, the Contractor agrees to satisfactorily perform and complete all work or effort described in each issued Task Order or any subsequently issued Task Order Changes within the period of performance specified in the Task Order and Notice to Proceed plus such extensions of time as may be granted by the Manager in accordance with the provisions of this contract.

### **TASK ORDER CHANGES**

In accordance with all terms and conditions provided for standard change orders under General Contract Conditions 1101 et seq. CHANGE ORDERS and COST ADJUSTMENTS FOR CHANGE ORDERS, the City may issue Change Orders providing for deletions, additions and modifications to the work under a duly issued Task Order. Change Orders must be issued on the Change Order Form, a sample of which is included herein in the Contract Forms Section. In the event of a conflict between GC 1104.2 and the markups submitted by the Contractor identified in the Schedule of Prices and Quantities, regarding any pay item identified in GC 1104.2, the markups and rates submitted by the Contractor in the Schedule of Prices and Quantities shall prevail.

### **TASK ORDER CLOSEOUT**

After all work performed under each Task Order has been accepted hereunder, final



payment and Task Order closeout shall be made in accordance with the terms and conditions of General Contract Condition 910 FINAL ESTIMATE AND PAYMENT. Except that, with the consent of the contractor, legal advertisement, pursuant to Article 26, Colorado Revised Statutes as amended may be held for Task Orders which do not exceed Fifteen Thousand Dollars (\$15,000.00) until such time as several such projects are completed and eligible for legal advertisement.

### **MOBILIZATION**

Section 1505 in Division I is modified, in part, in that the City shall pay actual mobilization costs, including any required additional bonds and insurance costs, subject to the approval of the Project Manager. The Contractor shall submit its mobilization costs pursuant to each Task Order and itemize all of its mobilization costs. If the Contractor purchases any equipment under mobilization the City shall pay only for the time and useful life, or rental value, whichever is less, for the use of the equipment for the duration of the Task Order. If the same piece of equipment is used for additional Task Orders under this Contract then the same time, useful life or rental value shall apply.

### **CONTRACT CLOSE-OUT**

Following final closeout of all Task Orders performed hereunder, the Contract shall proceed to final contract closeout. Final contract closeout shall be completed in accordance with all procedures, terms and conditions set forth in the General Conditions except that final settlement and release or retention will be made upon completion of each Task Order rather than contract completion. In addition, Contractor shall execute a Final Release and provide a final contract closeout.

### **SC-27 TASK DIRECTIVE**

A Task Directive is a written order, signed by the Manager or his designated representative, which directs the Contractor to commence a Task prior to complete agreement on or execution of a Task Order.

Upon receipt of a Task Directive, the Contractor shall immediately sign the Task Directive and return it to the Project Manager, and shall immediately proceed with performing the work. The Contractor, within fifteen (15) days after receiving the Task Directive, shall provide the Project Manager with a complete and itemized proposal which includes the estimated increase or decrease in the Contract Amount and/or Contract Time attributable to the planned work.

#### **Time and Materials.**

- a. If the maximum cost of the work to be performed under the Task Directive has not been agreed upon and reduced to writing in the actual Task Directive, Contractor shall proceed with such Work on a Time and Material basis.
- b. Whenever Work is performed on a Time and Material basis, the Contractor shall fully document all costs associated with such work. Beginning with the first Day such Work is performed, and on a daily basis thereafter, the Contractor shall submit to the Project Manager a daily itemization of all such costs in such form as the Project Manger may require.

- c. The final Task Order amount performed on a Time and Material basis shall be calculated in accordance with the Schedule of Prices and Quantities indicated in this contract.

**Task Order Agreement.**

If a Task Order agreement on the cost of the Work is reached prior to completion of the Work to be performed under a Task Directive or upon completion of the Task on a time and material basis, the agreed price will be promptly executed as a Task Order.

**SC-28 NOT USED**

**SC-29 SUBCONTRACTOR**

The term "subcontractor" includes a labor pool.

**SC-30 NOTICE TO PROCEED AND COMPLETION OF THE WORK.**

GC 302 B is amended by deleting the first sentence therein and replacing it with the following:

- .1 A written Initial Notice to Proceed will be issued by the Deputy Manager to initiate the Contract only, and such Initial Notice to Proceed is not authorization for the Contractor to proceed with the Work or to proceed with mobilization. Thereafter, the Deputy Manager may issue a Second or subsequent Notice to Proceed and a Task Order authorizing Work and/or mobilization.
- .2 Upon issuance of the Initial Notice to Proceed, the Contractor is allowed and authorized to incur reimbursable costs related to insurance, payment and performance bonds, and such other essential activities such as security access (vehicular access and personnel badging). Home office overhead, core staff and other allowable general conditions costs are not authorized under the initial Notice to Proceed.
- .3 Home office overhead, core staff and agreed upon general conditions' costs are authorized and allowed only for the time Work is authorized pursuant to a Second or subsequent Notice to Proceed and Task Order issued by the Project Manager. These costs, in part, are identified on Schedule of Prices and Quantities attached hereto, related to the rates and charges mutually agreed upon by City and Contractor. Requests for Task Order pricing proposals will not authorize the contractor to accumulate reimbursable costs. Costs for Task Order proposal preparation and Task Order negotiation will not be reimbursable. Upon the substantial completion of Work under any subsequent Notice to Proceed, including a Second Notice to Proceed and/or Work Order, whichever is applicable, reimbursement for these costs expires unless otherwise agreed to in writing and authorized by the Project Manager, limited to the sole and only purpose of facilitating Final Completion of the authorized Work. Any

costs the Contractor incurs, except for those costs allowed under the Initial Notice to Proceed, after substantial completion without written authorization by the Project Manager shall be absorbed by the Contractor and shall be at the Contractor's own risk.

- .4 If any milestones are described in the Contract Documents, the Work described by each milestone shall be accomplished in accordance with the Contract Documents within the specified Contract Time, or in the alternative, if a Task Order is issued for Work, than the Work shall be accomplished in accordance with the Task Order and completed within the time set forth by said Task Order.

### **SC-31 WORKING HOURS AND SCHEDULE**

GC 306 B is amended by deleting the first sentence therein and replacing it with the following:

- B. Within seven (7) days of the issuance of the Second Notice to Proceed or any subsequent Notice to Proceed and/or any Task Order, whichever is applicable, and authorizes Work, the Contractor shall submit a Work specific mobilization plan with a mobilization schedule and a Work Schedule (also known as a construction schedule) to the Deputy Manager or his designee for review and approval.

### **SC-32 CONTRACTOR'S SUPERINTENDENT**

GC 307 is deleted in its entirety and replaced with the following:

The Contractor shall employ and designate to the Deputy Manager, in writing, a competent Superintendent and/or Project Manager whose qualifications shall be acceptable to the Deputy Manager. The Superintendent and/or Project Manager shall serve on a full-time basis at the worksite whenever Work is authorized, pursuant to the Contract, and shall be authorized to act on behalf of the Contractor in all matters related to the authorized Work. The same person or persons shall continue in his or her capacity throughout the Contract Time, however, payment for such person or persons shall be limited to the time authorized for the Work pursuant to the Second Notice to Proceed or subsequent Notice to Proceed and/or Task Order, whichever controls the time for the Work. The Superintendent and/or Project Manager, or his designated representative, must be on-site at all times when on-site Work is performed.

### **SC-33 MOBILIZATION**

The Contractor, upon issuance of the Second Notice to Proceed or any subsequent Notice to Proceed, or in the alternative, a Task Order, by the Deputy Manager, pursuant to SC 30 or any other

applicable mobilization condition or specification, shall submit a detailed mobilization plan to the Deputy Manager, or his designee, setting forth the proposed location for mobilization, mobilization costs and equipment to be rented or purchased for the specific Work authorized. All such costs are subject to the approval of the Deputy Manager, or his designee, and any equipment purchase or rental costs wherein the value of such equipment is paid for in excess of 90% of such value, then such equipment may, at the end of the Contract Time or Final Completion, whichever occurs earlier, become subject to ownership by the City (Airport) at City's option. Further, such equipment shall be used solely by the Contractor for Work under this Contract unless otherwise authorized by the Deputy Manager. Such equipment shall not be used for personal uses or activities.

**SC- 34 BONDS, SALES TAX AND INSURANCE**

Bonds, sales tax and insurance shall be included in the unit rates for the assigned work or paid at cost without mark up as directed by DIA.

**SC-35 NO EMPLOYMENT OF ILLEGAL ALIENS TO PERFORM WORK UNDER THE AGREEMENT:**

A. The Agreement is subject to Den. Rev. Mun. Code 20-90 and the Consultant is liable for any violations as provided in the ordinance.

B. The Consultant certifies that:

(1) At the time of its execution of this Agreement, it does not knowingly employ or contract with an illegal alien who will perform work under this Agreement.

(2) It will participate in either the E-Verify Program, as defined in § 8 17.5-101(3.7), C.R.S., to confirm the employment eligibility of all employees who are newly hired for employment to perform work under this Agreement.

C. The Consultant also agrees and represents that:

(1) It shall not knowingly employ or contract with an illegal alien to perform work under the Agreement.

(2) It shall not enter into a contract with a subcontractor that fails to certify to the Consultant that it shall not knowingly employ or contract with an illegal alien to perform work under the Agreement.

(3) It has confirmed the employment eligibility of all employees who are newly hired for employment to perform work under this Agreement, through participation in the E-Verify Program.

(4) It is prohibited from using the E-Verify Program procedures to undertake pre-employment screening of job applicants while performing its obligations under the Agreement.

(5) If it obtains actual knowledge that a subcontractor performing work under the Agreement knowingly employs or contracts with an illegal alien, it will notify such subcontractor and the City within three days. The Consultant will also then terminate such subcontractor if within three days after such notice the subcontractor does not stop employing or contracting with the illegal alien, unless during such three day period the subcontractor provides information to establish that the subcontractor has not knowingly employed or contracted with an illegal alien.

(6) It will comply with any reasonable request made in the course of an investigation by the Colorado Department of Labor and Employment under authority of § 8-17.5-102(5), C.R.S. or the City Auditor under authority of Den. Rev. Mun. Code 20-90.3.

**SC-36 RETAINAGE, G.C. 908**

General Condition 908 is amended to read as follows:

The City shall deduct and retain a total of five percent (5%) from the total amount of approved applications for payment, including Change Orders. The City may also deduct in addition to retainage as stated above, the additional amount(s) of any and all outstanding claims pursuant to CRS §38-26-107 from each approved application for payment.

# Insurance Certificate

Do not submit the insurance form with the Proposal. This form outlines the insurance coverages and minimum limits of liability for the contract which must be in place and maintained for the duration of this contract.

**CITY AND COUNTY OF DENVER  
CERTIFICATE OF INSURANCE FOR DEPARTMENT OF AVIATION**

Original COI

Advice of Renewal

Change

Party to Whom this Certificate is Issued:

Name and Address of Insured:

CITY AND COUNTY OF DENVER  
Manager of Aviation  
Denver International Airport  
8500 Peña Boulevard, Room 8810  
Denver CO 80249

**CONTRACT NAME & NUMBER TO WHICH THIS INSURANCE APPLIES: 201102006 – 2012-2013 Terminal Roadway and Garage Repairs**

**I. MANDATORY COVERAGE**

**Colorado Workers' Compensation and Employer Liability Coverage**

**Coverage:** COLORADO Workers' Compensation

**Minimum Limits of Liability (In Thousands)**

WC Limits: \$100, \$500, \$100

And Employer's Liability Limits:

**Any Policy issued under this section must contain, include or provide for the following:**

1. All States Coverage or Colorado listed as a covered state for the Workers' Compensation
2. Waiver of Subrogation and Rights of Recovery against the City and County of Denver (the "City"), its officers, officials and employees.

**Commercial General Liability Coverage**

**Coverage:** Commercial General Liability (coverage at least as broad as that provided by ISO form CG0001 or equivalent)

**Minimum Limits of Liability (In Thousands):**

Each Occurrence:	\$1,000
General Aggregate Limit:	\$2,000
Products-Completed Operations Aggregate Limit:	\$2,000
Personal & Advertising Injury:	\$1,000
Fire Damage Legal - Any one fire	\$1,000

**Any Policy issued under this section must contain, include or provide for the following:**

1. City, its officers, officials and employees as additional insureds, per ISO form CG2010 and CG 2037 or equivalents.
2. Coverage for defense costs of additional insureds outside the limits of insurance, per CG0001.
3. Liability assumed under an Insured Contract (Contractual Liability).
4. The full limits of coverage must be dedicated to apply to this project/location, per ISO form CG2503 or equivalent.
5. Waiver of Subrogation and Rights of Recovery, per ISO form CG2404 or equivalent.
6. Separation of Insureds Provision required
7. General Aggregate Limit Applies Per: Policy \_\_\_ Project \_\_\_ Location \_\_\_, if applicable

**Business Automobile Liability Coverage**

**Coverage:** Business Automobile Liability (coverage at least as broad as ISO form CA0001)

**Minimum Limits of Liability (In Thousands):** Combined Single Limit \$1,000

**Any Policy issued under this section must contain, include or provide for the following:**

1. Symbol 1, coverage for any auto. If no autos are owned, Symbols 8 & 9, (Hired and Non-owned) auto liability.
2. If this contract involves the transport of hazardous cargo such as fuel, solvents or other hazardous materials may occur, then Broadened Pollution Endorsement, per ISO form CA 9948 or equivalent and MCS 90 are required.

## **II. ADDITIONAL COVERAGE**

### **Umbrella Liability**

**Coverage:**

<b>Umbrella Liability, Non Restricted Area</b>		
<b>Minimum Limits of Liability (In Thousands)</b>	Each Occurrence and aggregate	\$1,000

**Any Policy issued under this section must contain, include or provide for the following:**

1. City, its officers, officials and employees as additional insureds.
2. Coverage in excess of, and at least as broad as, the primary policies in sections WC-1, CGL-1, and BAL-1.
3. **If operations include unescorted airside access at DIA, then a \$9 million Umbrella Limit is required.**

## **III. ADDITIONAL CONDITIONS**

It is understood and agreed, for the benefit of the City, that the following additional conditions shall apply to all coverage specified herein

- All coverage provided herein shall be primary and any insurance maintained by the City shall be considered excess.
- With the exception of professional liability and auto liability, a Waiver of Subrogation and Rights of Recovery against the City, its officers, officials and employees is required for each coverage period.
- The City shall have the right to verify or confirm, at any time, all coverage, information or representations contained herein, and the insured and its undersigned agent shall promptly and fully cooperate in any such audit the City may elect to undertake.
- Advice of renewal is required.
- All insurance companies issuing policies hereunder must carry at least an A -VI rating from A.M. Best Company or obtain a written waiver of this requirement from the City's Risk Administrator.
- Compliance with coverage requirement by equivalent herein must be approved in writing by the City's Risk Administrator prior to contract execution.
- No changes, modifications or interlineations on this Certificate of Insurance shall be allowed without the review and approval of the Risk Administrator prior to contract execution.

### **NOTICE OF CANCELLATION**

It is understood and agreed that should any Policy issued hereunder be cancelled or non-renewed before the expiration date thereof, or sustain a material change in coverage adverse to the City, the issuing company or its authorized Agent shall give notice to the Department of Aviation in accordance with policy provisions.



*CITY AND COUNTY OF DENVER  
RULES AND REGULATIONS AND PROPOSAL CONDITIONS  
OF THE  
MANAGER OF PUBLIC WORKS*

**PERTAINING TO EQUAL EMPLOYMENT OPPORTUNITY  
IN THE CITY AND COUNTY OF DENVER**

APPROVED FOR LEGALITY

APPROVED AND ADOPTED:

*/s/*

*/s/*

\_\_\_\_\_  
Attorney for the City and County of Denver

\_\_\_\_\_  
Manager of Public Works

Adopted and Published Pursuant to Article III, Division 2 of Chapter 28  
of the  
*Revised Municipal Code*  
of the  
City and County of Denver

These Rules and Regulations cancel  
and supersede any and all previously  
issued Rules and Regulations on the Subject.

Revised November 1, 1990

**RULES AND REGULATIONS  
REGARDING  
EQUAL EMPLOYMENT OPPORTUNITY**

Promulgated and adopted by the Manager of Public Works 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, material 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" means the Manager of Public Works 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 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 Contract Compliance.
  - 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. "Bidding Specifications" as used in Article III, Division 2 of Chapter 28 of the Revised Municipal Code shall include BID CONDITIONS, INVITATION T 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. "Office of Contract Compliance" 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 Denver 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 Denver Revised Municipal Code 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 Contract Compliance 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 Contract Compliance shall perform the duties assigned to such official by Article III, Division 2 Chapter 28 of the Denver Revised Municipal Code and by the Manager. The Director of Contract Compliance or designated representatives shall inform bidders and contractors of affirmative action procedures, programs, and goals in accordance with the Ordinance at pre-bid 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 Contract Compliance; 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 Contract Compliance 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 Contract Compliance to determine the affirmative action capability of proposers, contractors and subcontractors and to recommend to the Manager the award of contracts to those proposers, 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 Contract Compliance 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 proposals 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.

**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 15 days why enforcement procedures, or other appropriate action to insure compliance, should not be instituted.

**REGULATION NO. 12 - PROPOSAL CONDITIONS - AFFIRMATIVE ACTION REQUIREMENTS -  
EQUAL EMPLOYMENT OPPORTUNITY.**

1. APPENDIX E: The Proposal 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 in every non-exempt contract involving the use of federal funds.
2. APPENDIX F: The Proposal Conditions - Affirmative Action Requirements - Equal Employment Opportunity as published by the Department of Public Works, City and County of Denver, shall be inserted verbatim as bidding specifications for every non-exempt contract using City funds.

**CITY AND COUNTY OF DENVER  
DEPARTMENT OF PUBLIC WORKS  
DESIGN AND CONSTRUCTION MANAGEMENT DIVISION**

**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 ,Division 2 of Chapter 28 of the Denver Revised Municipal Code, and the rules, regulations, and relevant orders of the Manager of Public Works and the Director of the Mayor's Office of Contract Compliance.
5. The Contractor will furnish all information and reports required by Article m, Division 2 of Chapter 28 of the Denver Revised Municipal Code, and by rules, regulations and orders of the Manager and Director or pursuant thereto, and will permit access to the Contractors 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 m; Division 2 of Chapter 28 of the Denver Revised Municipal Code, or by rules, regulations, or order of the Manager of Public Works.
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 of Chapter 28 of the Denver Revised Municipal Code, so that such provisions will take such action with respect to any subcontractor or supplies. 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.

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 of Public Works and the Director of Contract Compliance in obtaining compliance of subcontractors and suppliers with the equal opportunity clause and the rules, regulations and relevant orders of the Manager of Public Works, and will furnish the Manager of Public Works and the Director of Contract Compliance 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 Denver 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 of Public Works and Director of Contract Compliance. In addition, the Contractor agrees that failure or refusal to comply with these undertakings the Manager of Public Works 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 Public Works

NOTICE

EACH PROPOSER, CONTRACTOR OR SUBCONTRACTOR (HEREINAFTER THE CONTRACTOR) MUST FULLY COMPLY WITH THE REQUIREMENTS OF THESE PROPOSAL 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 PROPOSAL 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 PROPOSAL CONDITIONS.

Manager of Public Works  
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 Mayor's 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 MINORITY PARTICIPATION FOR EACH TRADE	GOALS FOR FEMALE PARTICIPATION FOR EACH TRADE
From January 1, 1982 to Until Further Notice	From January 1, 1982 to 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 minority men and women.

**2. SPECIFIC AFFIRMATIVE ACTION STEPS:**

If 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 Public Works, and the Mayor's Office of Contract Compliance 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 as 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 Mayor's Office of Contract Compliance 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.

**3. NONDISCRIMINATION:**

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.

#### **A. 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 m, Division 2 of Chapter 28 of the Denver 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 Mayor's Office of Contract Compliance finds that a contractor failed to comply with the requirements of Article III, Division 2 of Chapter 28 of the Denver 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 Public Works in determining whether such contractor can comply with the requirements of Article III, Division 2 of Chapter 28 of the Denver Revised Municipal Code, and is therefore a "responsible prospective contractor".
3. The Mayor's Office of Contract Compliance shall review the Contractor's employment practices during the performance of the contract, If the Mayor's Office of Contract Compliance determines that the Contractor's Affirmative Action Plan is no longer an acceptable program, the Director shall notify the Manager.

#### **B. 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 Division 2 of Chapter 28 of the Denver Revised Municipal Code. It is the policy of the Department of Public Works 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 m, Division 2 of Chapter 28 of the Denver Revised Municipal Code, such Contractors cannot be considered to be in compliance with Article m, Division 2 of Chapter 28 of the Denver Revised Municipal Code, or its implementing rules and regulations.

#### **C. 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 Bid Conditions, it shall include these Bid Conditions in such subcontractors 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 Proposal 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 contractor contract modification subject to Article III, Division 2 of Chapter 28 of the Denver 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 of Chapter 28 of the Denver 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 m, Division 2 of Chapter 28 of the Denver 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 provisions of these Bid Conditions as shall be required by the Mayor's Office of Contract Compliance.
5. Requests for exemptions from these Proposal Conditions must be made in writing, with justification, to the Manager of Public Works, City and County Building, Room 379, Denver, Colorado 80202, and shall be forwarded through and with the endorsement of the Director of the Mayor's Office of Contract Compliance.

## STANDARD FEDERAL ASSURANCES ATTACHMENT 1

NOTE: As used below the term "contractor" shall mean and include the "Party of the Second Part," and the term "sponsor" shall mean the "City".

During the term 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 shall comply with the Regulations relative to nondiscrimination in federally assisted programs of the Department of Transportation (hereinafter "DOT") Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time (hereinafter referred to as the Regulations), 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, shall not discriminate on the grounds of race, color, sex, creed or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

3. Solicitations for Subcontractors, Including Procurements of Materials and Equipment. In all solicitations either by competitive bidding or negotiations made by the contractor for work to be performed under a subcontract, including procurements or materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

4. Information and Reports. The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto and shall 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 (FAA) to be pertinent to ascertain compliance with such Regulations, orders, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information, the contractor shall so certify to the sponsor of the FAA, as appropriate, and shall set forth what efforts it has made to obtain the information.

5. Sanctions for Noncompliance. In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, the sponsor shall impose such contract sanctions as it or the FAA may determine to be appropriate, including, but not limited to:

- a. Withholding of payments to the contractor under the contract until the contractor complies, and/or
- b. Cancellation, termination, or suspension of the contract, in whole or in part.

6. Incorporation of Provisions. The contractor shall include the provisions of paragraphs 1 through 5 in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations or directives issued pursuant thereto. The

contractor shall take such action with respect to any subcontract or procurement as the sponsor or the FAA may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the sponsor to enter into such litigation to protect the interests of the sponsor and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

# PROJECT MANUAL



DENVER  
INTERNATIONAL  
AIRPORT

**DENVER INTERNATIONAL AIRPORT**

**ON-CALL CONSTRUCTION SERVICES  
2012-13 TERMINAL ROADWAY  
AND GARAGE REPAIRS**

**TASK 1 2012 EAST TERMINAL ROADWAY  
REPAIRS AND MOISTURE PROTECTION**

**CONTRACT NUMBER 201102006**

## TECHNICAL SPECIFICATIONS

*Issued for RFP –August 25, 2011*

CITY & COUNTY OF DENVER  
DEPARTMENT OF AVIATION

**2012-13 TERMINAL ROADWAY & GARAGE REPAIRS  
TASK 1 2012 EAST TERMINAL ROADWAY REPAIRS & MOISTURE PROTECTION**

**TECHNICAL SPECIFICATIONS**

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**DIVISION 22 - PLUMBING**

220500 – Common Work Results for Plumbing



## SECTION 020010 - WORK ITEMS

### PART 1 - GENERAL

#### RELATED DOCUMENTS

- A. Include, but are not limited to, the Contract Drawings, Construction Contract General Conditions and Special Conditions. For a complete list of the Contract Documents, please refer to Article I of Contract.

### PART 2 - PRODUCTS (NOT APPLICABLE)

### PART 3 - EXECUTION

- A. Scope of Work
  - 1. Work consists of performing all tasks, specifically required and incidental, which are not identified under separate Work Item designation, but necessary to perform the work identified in this project. This work includes, but is not limited to the following items:
    - WI 1.1 - Mobilization
    - WI 1.2 - Concrete Formwork
    - WI 1.3 - Concrete Shores and Reshores
    - WI 1.4 - Concrete Reinforcement
    - WI 1.5 - Temporary Signage
    - WI 1.6 - Work Sequence and Constraints
    - WI 1.7 - Vehicle Relocation
    - WI 1.8 - Traffic Control
    - WI 1.9 - General Construction Allowance

#### WI 1.1 PROJECT MOBILIZATION

- A. Scope of Work
  - 1. Work consists of coordinating, scheduling, obtaining and assembling at construction site all equipment, materials, permits, supplies, manpower and other essentials and incidentals necessary to perform Work defined in this Contract.
- B. Materials
  - 1. None
- C. Execution
  - 1. Reference Division 1 Sections 01014 "Work Sequence and Constraints" and 01505 "Mobilization" for information.

**WI 1.2 CONCRETE FORMWORK (INCIDENTAL)****A. Scope of Work**

1. Work consists of furnishing all labor, materials, equipment, supervision, and incidentals necessary to install shoring and formwork as required for cast-in-place concrete.

**B. Materials**

1. Forms for Exposed Finish Concrete: Plywood, metal, metal-framed plywood faced, or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on Drawings.
  - a. Use overlaid plywood complying with U.S. Product Standard PS-1 "A-C or B-B High Density Overlaid Concrete Form," Class I
  - b. Use plywood complying with U.S. Product Standard PS-1 "B-B (Concrete Form) Plywood," Class I, Exterior Grade or better, mill-oiled and edge-sealed, with each piece bearing legible inspection trademark.
2. Forms for Unexposed Finish Concrete: Plywood, lumber, metal, or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.
3. Form Coatings: Provide commercial formulation form-coating compounds with a maximum VOC of 350 mg/l that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces, including but not limited to water-curing, curing compound, stains, or paints.
4. Form Ties: Factory-fabricated, adjustable-length, removable or snap-off metal form ties, designed to prevent form deflection and to prevent spalling concrete upon removal. Provide units that will leave no metal closer than 1.5 in. to exposed surface.
  - a. Provide ties that, when removed, will leave holes not larger than 1.0 in. diameter in concrete surface.
5. Shores:
  - a. Nail Ellis clamps, if used with wood shores, to shores with minimum of two nails to prevent slipping.
  - b. Wedges: Hardwood or steel. Softwood wedges prohibited.

**C. Execution**

1. Work shall conform to requirements of ACI 301 "Standard Specifications for Structural Concrete," ACI 302.1 R "Guide for Concrete Floor Slab Construction," ACI 318 "Building Code Requirements for Reinforced Concrete," and ACI 347 "Recommended Practice for Concrete Formwork" except as modified by the following paragraphs.
2. Store all formwork and formwork materials clear of ground, protected, so as to preclude damage.
3. Construct forms to sizes, shapes, lines, and dimensions shown and to obtain accurate alignment, location, grades, level, and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide backup at joints to prevent leakage of cement paste.

4. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like, for easy removal.
5. Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Securely brace temporary openings and set tightly to forms to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
6. Chamfer exposed corners and edges as indicated, using wood, metal, PVC, or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.
7. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses, and chases from trades providing such items. Accurately place and securely support items built into forms.
8. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, or other debris just before concrete is placed. Retighten forms and bracing before concrete placement as required to prevent mortar leaks and maintain proper alignment.
9. Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in finished slab surface. Provide and secure units sufficiently strong to support types of screed strips by use of strike-off templates or accepted compacting type screeds
10. Coat contact surfaces of forms with accepted, nonresidual, low-VOC form-coating compound before reinforcement is placed.
11. Coat steel forms with non-staining, rust-preventive form oil or otherwise protect against rusting. Rust-stained steel formwork not acceptable.
12. For post-tensioned concrete, formwork shall remain in place until post-tensioning has been completed. Do not place additional loads on structure until concrete has been properly reshored.
13. For non-post-tensioned concrete, formwork shall remain in place until concrete has reached minimum two-thirds of 28-day strength. Do not place additional loads on structure until concrete has been properly reshored.
14. Clean and repair surfaces of forms to be re-used in Work. Split, frayed, delaminated or otherwise damaged form facing material will not be acceptable for exposed surfaces. Apply new form coating compound as specified for new formwork.
15. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use "patched" forms for exposed concrete surfaces, except as acceptable to Project Manager.

### WI 1.3 CONCRETE SHORES AND RESHORES (INCIDENTAL)

#### A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision, and incidentals necessary to install temporary shoring and to maintain shores in place until restoration Work requiring shores and associated concrete has properly cured.

#### B. Materials

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SECTION 020010 - WORK ITEMS

1. Shores shall be steel, rated at a minimum allowable load of 4,500 lb at 12 ft extension or steel shoring towers rated at a minimum allowable load of 40,000 lbs per four leg tower (based on two 20,000 lb crossed braced frames.).

## C. Execution

1. Comply with ACI 301 and ACI 347 for shoring and reshoring in multi-story construction, except as modified in this Section.
2. For purpose of calculations: Construction Load = 50 psf; Dead Load = **180** psf for the floor slab plus the dead load of double tees.
3. Shore/Reshore loads on the structure shall not exceed 40 psf distributed load on the **precast double tees** and concentrated loads shall not exceed posted wheel loads or 2,000 lbs., whichever is less. Concentrated bearing pressures shall not exceed 1,200 psi.
4. Shore/Reshore loads on concrete slab-on-grade shall be distributed by steel grillage or timber grillage so as not to exceed soil bearing capacity or 1,500 psf, whichever is smaller.
5. Shore/Reshore loads on asphalt slab-on-grade shall be distributed by steel grillage so as not to exceed asphalt/soil bearing capacity, with consideration of reduced asphalt bearing capacity during extreme hot weather.
6. Shore/Reshore loads shall be distributed horizontally and/or distributed to more than one level to meet shore/reshore load limitations.
7. Shore/Reshore loads shall be distributed to multiple framing members (beams/joists/double tee stems) and extend beyond the immediate work area to ensure proper distribution of loads throughout the structure.
8. Prior to installation of shores, Contractor shall submit shoring scheme prepared and sealed by registered Professional Engineer in Colorado.
9. Project Manager will review shoring scheme for general conformance to requirements stated herein.
10. Remove shores and reshore in planned sequence to avoid damage to partially cured concrete. Locate and provide adequate reshoring to safely support Work without excessive stress or deflection.
11. Keep reshores in place as required until heavy loads due to construction operations have been removed.
12. If during construction, modifications are necessary to accommodate other trades, revise and resubmit erection plan to Project Manager for review.

**WI 1.4 CONCRETE REINFORCEMENT (INCIDENTAL)**

## A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision, and incidentals necessary to fabricate and install all mild steel reinforcement and epoxy coated reinforcement.

## B. Materials

1. Reinforcement materials shall be as specified in ACI 301 "Standard Specifications for Structural Concrete."
2. Welded wire reinforcement: provide mats only. Roll stock prohibited.
3. Epoxy Coating Materials for Reinforcement: ASTM A775 and A884:
4. Supplier shall be certified currently under CRSI Fusion Bonded Epoxy Coating Applicator Plant Certification Program.

DIVISION 2 - SITEWORK  
SECTION 020010 - WORK ITEMS

5. Provide one of following epoxy coatings for reinforcement and steel accessories as noted on the Drawings:
  - a. "Scotchkote 413," by 3M Company, St. Paul, MN.
  - b. "Nap-Gard 7-2719," by DuPont Powder Coatings, USA, Inc.
6. Use patching material recommended by epoxy powder manufacturer, compatible with epoxy coating and inert in concrete. Acceptable materials are as follows:
  - a. "Scotchkote 413/215," by 3M Company, St. Paul, MN.
  - b. "Duralprep AC," by The Euclid Chemical Company, Cleveland, OH.
  - c. "Sika Armatec 110 EpoCem," by Sika Corporation, Lyndhurst NJ.
7. Corrosion Inhibiting Coating for Existing Exposed Non-prestressed Steel Reinforcement or Welded wire reinforcement:
  - a. "Euco 452", or "Duralcrete Series" by The Euclid Chemical Company, Cleveland, OH.
  - b. "Sikadur 32 Hi-Mod LPL," by Sika Corporation, Lyndhurst, NJ.
  - c. "Sika Armatec 110 EpoCem," by Sika Corporation, Lyndhurst NJ.

## C. Execution

1. Work shall conform to requirements of ACI 301 "Standard Specifications for Structural Concrete," ACI 315-80 "Details and Detailing of Concrete Reinforcement," ACI 318 "Building Code Requirements for Reinforced Concrete," and Concrete Reinforcing Steel Institute (CRSI), "Manual of Standard Practice."
2. Submittals required include: Product data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, and others as requested by Project Manager including, but not limited to:
  - a. Manufacturer's product data and installation instructions for proprietary form coatings, manufactured form systems, ties, and accessories.
  - b. Steel producer's certificates of mill analysis, tensile tests, and bend tests.
  - c. Manufacturer's product data, specifications, and installation instructions for proprietary materials, welded and mechanical splices, and reinforcement accessories.
  - d. Corrosion Inhibitor for Reinforcement:
    - 1) Written certification from coating manufacturer that coating resin for reinforcement has been approved by National Bureau of Standards.
    - 2) Written information from coating manufacturer on proper use and application of coating resin.
    - 3) Coating applicator's written certification of results of quality control program.
  - e. Submit all materials and methods for concrete curing to Project Manager for approval before beginning concreting Work. Include certification of curing compound allowable moisture loss.
3. Store concrete reinforcement materials at site to prevent damage and accumulation of dirt or excessive rust.
4. Epoxy Coated Reinforcement:

- a. Contact areas of handling and hoisting systems shall be padded or be made of nylon or other acceptable material.
  - b. Use spreader bars to lift bundles of coated steel to prevent bar-to-bar abrasion.
  - c. Pad bundling bands or fabricate of nylon or other acceptable material.
  - d. Store coated steel on padded or wooden cribbing.
  - e. Do not drag coated steel members.
  - f. After placement, restrict traffic on coated steel to prevent damage.
5. Reinforcement with any of following defects will be rejected:
- a. Lengths, depths and bends exceeding CRSI fabrication tolerances.
  - b. Bends or kinks not indicated on Drawings or final Shop Drawings.
  - c. Reduced cross-section due to excessive rusting or other cause.
6. General: Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars," for details and methods of reinforcement placement and supports and as herein specified.
- a. Avoiding cutting or puncturing vapor retarder during reinforcement placement and concreting operations.
  - b. Examine conditions under which concrete reinforcement is to be placed, and immediately notify Project Manager in writing of unsatisfactory conditions. Do not proceed with Work until unsatisfactory conditions have been corrected in acceptable manner.
  - c. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials that reduce or destroy bond with concrete.
  - d. Fabricate reinforcement to conform to required shapes and dimensions, with fabrication tolerances complying with CRSI MSP. In case of fabricating errors, do not re-bend or straighten reinforcement in manner that will injure or weaken material.
  - e. Bends in reinforcement are standard 90° bends unless noted otherwise.
  - f. Reinforcement with any of following defects will be rejected:
    - 1) Lengths, depths and bends exceeding CRSI fabrication tolerances.
    - 2) Bends or kinks not indicated on Drawings or final Shop Drawings.
    - 3) Reduced cross-section due to excessive rusting or other cause.
  - g. Perform all welding of mild steel reinforcement, metal inserts and connections with low hydrogen welding electrodes in accordance with AWS D1.4.
  - h. Epoxy coated reinforcement: Fabricator and applicator to provide installer with written instructions to handle, store and place epoxy coated reinforcement to prevent damage to coating.
  - i. Comply with ACI 301, Chapter 3 for placing reinforcement.
  - j. Use rebar chairs and accessories to hold all reinforcing positively in place. Provide rebar chairs at all formed surfaces, both vertical and horizontal, to maintain minimum specified cover. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces. Maximum spacing of chairs and accessories shall be per CRSI Manual of Standard Practice. In situations not covered by CRSI, provide support at 4 ft on center maximum each way.
  - k. Install welded wire reinforcement in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.
  - l. Splices:

- 1) Provide standard reinforcement splices by lapping ends, placing bars in contact, and tying tightly with wire. Comply with requirements of ACI 318 for minimum lap of spliced bars.
  - 2) For mechanical tension splices of reinforcement:
    - a) Column bar lengths shall not exceed 30 ft between splices. In any bar, no splices shall occur at any floor level.
    - b) Exercise care to assure that no reduction of cross-sectional area of reinforcement occurs.
    - c) Use Barsplice Products, Inc., Bar-Grip or Grip-Twist, NMB Splice Sleeve, or Erico LENTON splices.
    - d) For all mechanical splices, perform splicing in strict accordance with manufacturer's requirements and instructions.
    - e) All splices to develop 125% of specified yield strength of bars, or of smaller bar in transition splices.
    - f) Stagger splices in adjacent bars.
    - g) Except where shown on Drawings, welding of reinforcement prohibited without prior written authorization by Project Manager.
  - 3) Compression splices: Mechanically coupled splices in accordance with ACI 318, Chapter 12.
- m. Epoxy Coated Reinforcement:
- 1) Rest epoxy coated steel members supported from formwork on coated wire bar supports, or on bar supports made of dielectric material or other suitable material.
  - 2) Coat wire bar supports with dielectric material for minimum distance of 2 in. from point of contact with coated steel member.
  - 3) Fasten epoxy-coated steel members with nylon-, epoxy-, or plastic-coated tie wire, or other suitable material acceptable to Project Manager.
  - 4) Mechanical connections, when required, shall be installed in accordance with splice device manufacturer's recommendations. Repair any damage to coating.
  - 5) All parts of mechanical connections on epoxy-coated steel, including steel splice sleeves, bolts, and nuts shall be coated with same material used for repair of coating damage.
  - 6) Do not cut epoxy-coated steel unless permitted by Project Manager. When cut, coat ends with material used for repair of coating damage.
  - 7) All welding of epoxy-coated steel shall conform to AWS D1.4.
  - 8) Adequate ventilation shall be provided when welding epoxy-coated steel.
  - 9) After welding, repair coating damage as specified in Part 3 heading "Quality Control Testing During Construction," paragraph "Epoxy Coated Material."

#### WI 1.5 TEMPORARY SIGNAGE (INCIDENTAL)

##### A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment and supervision necessary to provide and install and remove following completion of project, temporary signage as required for traffic control and user information during construction and as required by Project Manager.

## B. Materials

1. Temporary signage shall meet following minimum requirements:
  - a. Minimum size: **REFERENCE DRAWING SHEET SR-130 FOR REQUIRED SIGNS AND SIGN SCHEDULE**
  - b. Colors:
    - 1) Background: medium orange or white.
    - 2) Symbols/Lettering: black
  - c. Lettering: silk screened or die-cut.
    - 1) Font Style: Helvetica or similar.
    - 2) Size: 2 in. high minimum for pedestrian information; 4 in. high minimum for traffic information.

## C. Execution

1. Contractor shall submit to Project Manager a traffic control plan, signage plan, sign schedule and shut down procedures showing closures of each level of the roadway structure.
2. Contractor shall submit traffic control plan including detour routes, alternate access routes including commercial vehicle wayfinding signage details.
3. Contractor shall submit pedestrian control plan including detour routes, alternate access routes including pedestrian wayfinding signage details.
4. Contractor shall submit shop drawings detailing sign size, layout, colors, and mounting schemes for approval prior to fabricating signs and mounting brackets.
5. Typical regulatory signs (that is, STOP, YIELD, etc.) and "Handicap" signs shall conform to all Federal, state, and local requirements for sizes, materials, and colors.
6. Signage required for shoring operations/closures shall be included in shoring or related Work Item cost.
7. **Contractor shall provide unit cost breakdown for each sign type in sign schedule to Project Manager. Additional signage if required will be paid for at unit cost per sign.**
8. **Project Manager may require additional informational signage during contract dependent on contractors Phasing and closure schedule.**

**WI 1.6 WORK SEQUENCE AND CONSTRAINTS (INCIDENTAL)**

## A. Scope of Work

1. Reference Division 1 Specification Section 01014 "Work Sequence and Constraints".

**WI 1.7 VEHICLE RELOCATION**

## A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision, and incidentals necessary to temporarily relocate public/private vehicles from Work Areas prior to each phase of construction.



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2. Provide necessary signage to effectively communicate instructions and the implications to them due to this work item, to the public during all phases of construction in each Work Area.

**B. Materials**

1. Refer to specification sections 01014 “Work Sequence and Constraints” and Section 01580 “Temporary Signs” for materials and procedures associated with this Work Item.

**C. Equipment**

1. Contractor shall provide a commercially licensed towing service to relocate vehicles.

**D. Execution**

1. Photograph and document vehicle location, license plate number, and visually evident damage prior to relocations.
2. Obtain Project Manager approval for relocation of all vehicles.
3. Coordinate with DIA Parking all movement of public vehicles.
4. Remove all vehicles from Work Area prior to start of Construction in each level.
5. Vehicles are to be relocated in the Temporary Vehicle Relocation Areas in the Parking Structure as directed by the Project Manager. Vehicles parked in handicapped stall shall be relocated to handicapped accessible stalls. Co-ordinate handicapped accessible relocation with Project Manager.
6. Contractor shall post informational signage of towed or relocated vehicles stating the make model and license plate number of the vehicle and the area it was towed from along with relocation information. This signage must be placed in the lobby of the parking structure accessible to patrons as they return to the area of the parking structure where the vehicle was relocated from.
7. A list of relocated and towed vehicles must be submitted to the Project Manager and parking office immediately after relocation of vehicles and/ or by 5:00 pm on the day of relocation.

**WI 1.8 TRAFFIC CONTROL****A. Scope of Work**

1. Work consists of furnishing all labor, materials, equipment and supervision necessary to provide traffic control plan and install traffic control devices and user information during construction and as required by Project Manager.
2. Reference Division 1 Specification Section 01576 “Traffic Control.”

**B. Materials**

1. Refer to specification sections 01014 “Work Sequence and Constraints”, Section 01576 “Traffic Control” and Section 01580 “Temporary Signs” for materials and procedures associated with this Work Item.

**WI 1.9 GENERAL CONSTRUCTION ALLOWANCE****A. Scope of Work**

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1. Work consists of furnishing all labor, materials, equipment, supervision, and incidentals necessary to perform miscellaneous electrical, mechanical, and/or utility work; concrete repairs; architectural floor/wall treatments; testing; and other work as directed by the Project Manager.
- B. Equipment (Not Applicable)
- C. Execution
  1. The Contractor shall include in its bid a General Construction Allowance of (\$300,000). The allowance will be used to perform miscellaneous hidden condition work as defined above. Expenditures under this allowance can only be authorized by the Project Manager.

**WI 2.0 FLOOR SURFACE PREPARATION**

- A. Scope of Work
  1. This Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate existing spalls, locate and remove delaminated and unsound concrete and prepare cavities for repair and/or overlay. Refer to Detail Series 2.0 for specific requirements.
- B. Materials (NOT APPLICABLE)
- C. Execution
  1. Contractor shall locate and mark all Work areas as specified in Section 025140 "Surface Preparation for Patching," Article "Inspection."
  2. Procedure for concrete removal and floor slab surface preparation shall be as specified in Section 025140 "Surface Preparation for Patching," Article "Concrete Removal and Floor Slab Surface Preparation."
  3. Project Manager shall inspect all cavities for condition according to Section 025140 "Surface Preparation for Patching," Article "Inspection of Exposed Surfaces and Reinforcement."
  4. All exposed steel within cavities shall be cleaned by sandblasting as specified in Section 025140 "Surface Preparation for Patching," Article "Cleaning of Reinforcement within Delamination and Spall Cavities," and damaged and defective reinforcement replaced as specified in Section 025140 "Surface Preparation for Patching," Article "Reinforcement and Embedded Materials in Repair Areas."
  5. Contractor shall prepare surface for overlay placement as specified in Section 025140 "Surface Preparation for Patching," Article "Final Preparation of Surfaces for Overlay Placement."

**WI 2.10 FLOOR PREPARATION - SCARIFICATION**

- A. Work consists of furnishing all labor, materials, equipment, and incidentals necessary to remove the top surface of concrete floor slab to prepare it for overlay installation. Refer to Work Item 2.0 "Floor Surface Preparation" for materials and procedure associated with this Work Item. Refer to Detail 2.10 for specific requirements.

**WI 3.0 CONCRETE FLOOR REPAIR**

## A. Scope of Work

1. This Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate existing spalls, locate and remove delaminated and unsound concrete, prepare cavities and install patching material to restore floor slab to original condition and appearance. Refer to Detail Series 3.0 for specific requirements.

## B. Warranty

1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

## C. Materials

1. Concrete repair materials shall be as specified in Section 033021 "Cast-in-Place Concrete" .
2. Conventional steel reinforcement shall be as specified in Section 033021 "Cast-in-Place Concrete" and/or Work Item 1.4 "Concrete Reinforcement."

## D. Execution

1. Contractor shall locate and mark all Work areas as specified in Section 025140 "Surface Preparation for Patching," Article "Inspection."
2. Procedure for delaminated, spalled and unsound concrete removal shall be as specified in Section 025140 "Surface Preparation for Patching," Article "Preparation." Remove all unsound concrete within marked boundary prior to sawcutting and preparation of patch edges.
3. Project Manager shall inspect all cavities for condition according to Section 025140 "Surface Preparation for Patching," Article "Inspection of Repair Preparation."
4. All steel exposed within cavities shall be cleaned to bare metal by sandblasting as specified in Section 025140 "Surface Preparation for Patching," Article "Cleaning of Reinforcement within Delamination and Spall Cavities," and damaged and defective reinforcement replaced as specified in Section 025140 "Surface Preparation for Patching," Article "Reinforcement and Embedded Materials in Repair Areas." Exposed steel shall be coated with an approved corrosion inhibitor as specified in Work Item 1.4 "Concrete Reinforcement."
5. Contractor shall prepare cavities for patch placement as specified in Section 025140 "Surface Preparation for Patching," Article "Preparation of Cavity for Patch Placement."
6. Patch materials and associated reference specifications are listed in Work Item 3.0 "Concrete Floor Repair," Article "Materials," above. Patch installation procedures shall be in accordance with referenced specifications for selected material.

**WI 3.10 FLOOR REPAIR - PARTIAL DEPTH / SHALLOW**

- A. Refer to Work Item 3.0 "Concrete Floor Repair" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 3.10 for specific requirements.

## B. Warranty

1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

**WI 3.40 FLOOR REPAIR – CURBS DEMO/ REPLACE**

## A. Scope of Work

1. This Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate existing spalls, locate and remove delaminated and unsound concrete from curbs, prepare cavities and install patching material to restore curbs to original condition and appearance. Refer to Detail 3.40 for specific requirements.

## B. Warranty

1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

## C. Materials

1. Concrete repair materials shall be as specified in Section 033021 "Cast in Place Concrete."
2. Conventional steel reinforcement shall be as specified in Section 033021 "Cast-in-Place Concrete" and/or Work Item 1.4 "Concrete Reinforcement."

## D. Execution

1. Contractor shall locate and mark all Work areas as specified in Section 025140 "Surface Preparation for Patching," Article "Inspection."
2. Procedure for delaminated, spalled and unsound concrete removal shall be as specified in Section 025140 "Surface Preparation for Patching," Article "Preparation." Remove all unsound concrete within marked boundaries prior to sawcutting and preparation of patch edges.
3. Project Manager shall inspect all cavities for condition according to Section 025140 "Surface Preparation for Patching," Article "Inspection of Repair Preparation."
4. All steel exposed within cavities shall be cleaned to bare metal by sandblasting as specified in Section 025140 "Surface Preparation for Patching," Article "Cleaning of Reinforcement within Delamination and Spall Cavities," and damaged reinforcement replaced as specified in Section 025140 "Surface Preparation for Patching," Article "Reinforcement and Embedded Materials in Repair Areas." Exposed steel shall be coated with an approved corrosion inhibitor coating as specified in Work Item 1.4 "Concrete Reinforcement."
5. Contractor shall prepare cavities for patch placement as specified in Section 025140 "Surface Preparation for Patching," Article "Preparation of Cavity for Patch Placement."
6. Patch materials and associated reference specifications are listed in Work Item 3.40 "Floor Repair - Curbs," Article "Materials," above. Patch installation procedures shall be in accordance with referenced specifications for selected material.

**WI 3.50 FLOOR REPAIR – PARTIAL DEPTH/DEEP**

## A. Scope of Work

1. This Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate and remove existing sound and unsound concrete in designated repair strips, prepare cavities and install patching material to restore floor slab to original condition and appearance. Refer to Detail 3.50 for specific requirements.

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- B. Warranty
1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.
- C. Materials
1. Concrete repair materials shall be as specified in Section 033021 "Cast-in-Place Concrete."
  2. Conventional steel reinforcement shall be as specified in Section 033021 "Cast-in-Place Concrete" and/or Work Item 1.4 "Concrete Reinforcement."
- D. Execution
1. Contractor shall locate and mark all Work areas as specified in Section 025140 "Surface Preparation for Patching," Article "Inspection."
  2. Procedure for delaminated, spalled and unsound concrete removal shall be as specified in Section 025140 "Surface Preparation for Patching," Article "Preparation." Remove all unsound concrete within marked boundaries prior to sawcutting and preparation of patch edges.
  3. Project Manager shall inspect all cavities for condition according to Section 025140 "Surface Preparation for Patching," Article "Inspection of Repair Preparation."
  4. All steel exposed within cavities shall be cleaned to bare metal by sandblasting as specified in Section 025140 "Surface Preparation for Patching," Article "Cleaning of Reinforcement within Delamination and Spall Cavities," and damaged reinforcement replaced as specified in Section 025140 "Surface Preparation for Patching," Article "Reinforcement and Embedded Materials in Repair Areas." Exposed steel shall be coated with an approved corrosion inhibitor coating as specified in Work Item 1.4 "Concrete Reinforcement."
  5. Contractor shall prepare cavities for patch placement as specified in Section 025140 "Surface Preparation for Patching," Article "Preparation of Cavity for Patch Placement."
  6. Patch materials and associated reference specifications are listed in Work Item 3.50 "Floor Repair - Curbs," Article "Materials," above. Patch installation procedures shall be in accordance with referenced specifications for selected material.

**WI 3.60 FLOOR REPAIR – FULL DEPTH LEVEL 5 & 6**

- A. Scope of Work
1. This Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate and remove existing sound and unsound concrete in designated repair strips, prepare cavities and install patching material to restore floor slab to original condition and appearance. Refer to Detail 3.60 for specific requirements.
- B. Warranty
1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.
- C. Materials
1. Concrete repair materials shall be as specified in Section 033021 "Cast-in-Place Concrete."

2. Conventional steel reinforcement shall be as specified in Section 033021 "Cast-in-Place Concrete" and/or Work Item 1.4 "Concrete Reinforcement."

D. Execution

1. Contractor shall locate and mark all Work areas as specified in Section 025140 "Surface Preparation for Patching," Article "Inspection."
2. Procedure for delaminated, spalled and unsound concrete removal shall be as specified in Section 025140 "Surface Preparation for Patching," Article "Preparation." Remove all unsound concrete within marked boundaries prior to sawcutting and preparation of patch edges.
3. Project Manager shall inspect all cavities for condition according to Section 025140 "Surface Preparation for Patching," Article "Inspection of Repair Preparation."
4. All steel exposed within cavities shall be cleaned to bare metal by sandblasting as specified in Section 025140 "Surface Preparation for Patching," Article "Cleaning of Reinforcement within Delamination and Spall Cavities," and damaged reinforcement replaced as specified in Section 025140 "Surface Preparation for Patching," Article "Reinforcement and Embedded Materials in Repair Areas." Exposed steel shall be coated with an approved corrosion inhibitor coating as specified in Work Item 1.4 "Concrete Reinforcement."
5. Contractor shall prepare cavities for patch placement as specified in Section 025140 "Surface Preparation for Patching," Article "Preparation of Cavity for Patch Placement."
6. Patch materials and associated reference specifications are listed in Work Item 3.60 "Floor Repair - Curbs," Article "Materials," above. Patch installation procedures shall be in accordance with referenced specifications for selected material.

**WI 3.70 FLOOR REPAIR – FULL DEPTH LEVEL 4**

A. Scope of Work

1. This Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate and remove existing sound and unsound concrete in designated repair strips, prepare cavities and install patching material to restore floor slab to original condition and appearance. Refer to Detail 3.70 for specific requirements.

B. Warranty

1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds" and the **Construction Contract General Conditions** for additional information.

C. Materials

1. Concrete repair materials shall be as specified in Section 033021 "Cast-in-Place Concrete."
2. Conventional steel reinforcement shall be as specified in Section 033021 "Cast-in-Place Concrete" and/or Work Item 1.4 "Concrete Reinforcement."

D. Execution

1. Contractor shall locate and mark all Work areas as specified in Section 025140 "Surface Preparation for Patching," Article "Inspection."
2. Procedure for delaminated, spalled and unsound concrete removal shall be as specified in Section 025140 "Surface Preparation for Patching," Article "Preparation." Remove all

- unsound concrete within marked boundaries prior to sawcutting and preparation of patch edges.
3. Project Manager shall inspect all cavities for condition according to Section 025140 "Surface Preparation for Patching," Article "Inspection of Repair Preparation."
  4. All steel exposed within cavities shall be cleaned to bare metal by sandblasting as specified in Section 025140 "Surface Preparation for Patching," Article "Cleaning of Reinforcement within Delamination and Spall Cavities," and damaged reinforcement replaced as specified in Section 025140 "Surface Preparation for Patching," Article "Reinforcement and Embedded Materials in Repair Areas." Exposed steel shall be coated with an approved corrosion inhibitor coating as specified in Work Item 1.4 "Concrete Reinforcement."
  5. Contractor shall prepare cavities for patch placement as specified in Section 025140 "Surface Preparation for Patching," Article "Preparation of Cavity for Patch Placement."
  6. Patch materials and associated reference specifications are listed in Work Item 3.60 "Floor Repair - Curbs," Article "Materials," above. Patch installation procedures shall be in accordance with referenced specifications for selected material.

**WI 3.80 FLOOR REPAIR - FULL DEPTH****A. Scope of Work**

1. This Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate and remove full depth unsound floor concrete, prepare cavity, and install patching material to restore floor to original integrity and appearance. Refer to Detail 3.80 for specific requirements.

**B. Materials**

1. Concrete repair materials shall be as specified in Section 033021 - "Cast in Place Concrete."
2. Conventional steel reinforcement shall be as specified in Section Work Item 1.4 "Concrete Reinforcement."

**C. Execution**

1. Contractor shall locate and mark all Work areas as specified in Section 025140 - "Surface Preparation for Patching" Article "Inspection."
2. All concrete shall be removed from within marked boundaries.
3. Sawcut shall then be made at control joint boundaries to depth of 0.75 in. (min.) and all edges shall be straight. Underside of slab shall have its repair edge ground to depth of 0.5 in. Patches shall be as square or rectangular-shaped as practical. All concrete within sawcut shall be removed. Also see Section 025140 - "Surface Preparation for Patching" Article, Article "Preparation."
4. Project Manager shall inspect all cavities for condition according to Section 025140 - "Surface Preparation for Patching" Article "Inspection of Repair Preparation."
5. All steel exposed within cavities shall be cleaned to bare metal by sandblasting according to Section 025140 - "Surface Preparation for Patching" Article "Cleaning of Reinforcement within Delamination and Spall Cavities," and damaged and defective reinforcement replaced as specified in Section 025140 - "Surface Preparation for Patching" Article "Reinforcement and Embedded Materials in Repair Areas." Exposed steel shall be epoxy coated with an approved epoxy resin as specified in Work Item 1.4 "Concrete Reinforcement."

6. Contractor shall prepare cavities for patch placement as specified in Section 025140 - "Surface Preparation for Patching" Article "Preparation of Cavity for Patch Placement."
7. Patch materials and associated reference specifications are listed in Work Item 3.8 "Floor Repair - Full Depth," Article "Materials," above. Patch installation procedures shall be in accordance with referenced specifications for selected material.

#### WI 4.0 CONCRETE CEILING REPAIR

##### A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate existing spalls, locate and remove delaminated and unsound concrete, prepare cavities and install patching material to restore ceilings to original condition and appearance. Refer to Detail Series 4.0 for specific requirements.

##### B. Warranty

1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds" and the **Construction Contract General Conditions** for additional information.

##### C. Materials

1. Trowel applied patching material shall be as specified in Section 033760 "Trowel Applied Mortar." This material may be used for shallow removal and repair Work Items only.

##### D. Execution

1. Contractor shall locate and mark all Work areas as specified in Section 025140 "Surface Preparation for Patching," Article "Inspection."
2. Procedure for delaminated, spalled and unsound concrete removal shall be as specified in Section 025140 "Surface Preparation for Patching," Article "Preparation."
3. Project Manager shall inspect all cavities for condition according to Section 025140 "Surface Preparation for Patching," Article "Inspection of Repair Preparation."
4. All steel exposed within cavities shall be cleaned to bare metal by sandblasting as specified in Section 025140 "Surface Preparation for Patching," Article "Cleaning of Reinforcement within Delamination and Spall Cavities," and damaged and defective reinforcement replaced as specified in Section 025140 "Surface Preparation for Patching," Article "Reinforcement and Embedded Materials in Repair Areas." Exposed steel shall be coated with an approved corrosion inhibitor coating as specified in Work Item 1.4 "Concrete Reinforcement."
5. Contractor shall prepare cavities for patch placement in accordance with Section 025140 "Surface Preparation for Patching," Article "Preparation of Cavity for Patch Placement."
6. Patch materials and associated reference specifications are listed in Work Item 4.0 "Concrete Ceiling Repair," Article "Materials," above. Patch installation procedures shall be in accordance with referenced specifications for selected material.
7. Area adjacent to repair shall be cleaned to Project Manager's satisfaction prior to leaving site.

#### WI 4.10 CEILING REPAIR - PARTIAL DEPTH / SHALLOW

- A. Refer to Work Item 4.0 "Concrete Ceiling Repair" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 4.10 for specific requirements.



## B. Warranty

1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

**WI 5.0 CONCRETE BEAM AND JOIST REPAIR**

## A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals including shoring necessary to locate existing spalls, locate and remove delaminated and unsound concrete, prepare cavities and install patching materials to restore concrete beams and joists to original condition and appearance. Refer to Detail Series 5.0 for specific requirements.

## B. Warranty

1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

## C. Materials

1. Trowel applied patching material shall be as specified in Section 033760 "Trowel Applied Mortar." This material may be used for shallow removal and repair Work Items only.

## D. Execution

1. Contractor shall locate and mark all Work areas as specified in Section 025140 "Surface Preparation for Patching," Article "Inspection." Contractor shall identify all critical repair work areas prior to start of work. Project Manager shall verify critical repair area identification.
2. Procedure for delaminated, spalled and unsound concrete removal shall be as specified in Section 025140 "Surface Preparation for Patching," Article "Preparation."
3. Project Manager shall inspect all cavities for condition according to Section 025140 "Surface Preparation for Patching," Article "Inspection of Repair Preparation."
4. All steel exposed within cavities shall be cleaned to bare metal by sandblasting according to Section 025140 "Surface Preparation for Patching," Article "Cleaning of Reinforcement within Delamination and Spall Cavities," and damaged and defective reinforcement replaced as specified in Section 025140 "Surface Preparation for Patching," Article "Reinforcement and Embedded Materials in Repair Areas." Exposed steel shall be coated with an approved corrosion inhibitor coating as specified in Work Item 1.4 "Concrete Reinforcement."
5. Contractor shall prepare cavities for patch placement as specified in Section 025140 "Surface Preparation for Patching," Article "Preparation of Cavity for Patch Placement."
6. Shoring support shall be provided as necessary and in accordance with Work Item 1.3 "Concrete Shores and Reshores."
7. Patch materials and associated reference specifications for repairs are listed in Work Item 5.0 "Concrete Beam and Joist Repair," Article "Materials," above. Patch installation procedures shall be in accordance with referenced specifications for selected material.
8. Area adjacent to repair shall be cleaned to Project Manager's satisfaction prior to leaving site.

**WI 5.10 BEAM REPAIR - PARTIAL DEPTH**

- A. Refer to Work Item 5.0 "Concrete Beam and Joist Repair" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 5.10 for specific requirements.
- B. Warranty
  - 1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

**WI 6.0 CONCRETE COLUMN REPAIR**

- A. Scope of Work
  - 1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals including shoring necessary to locate existing spalls, locate and remove delaminated and unsound concrete, prepare cavities and install patching materials to restore concrete columns to original condition and appearance. Refer to Detail Series 6.0 for specific requirements.
- B. Warranty
  - 1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.
- C. Materials
  - 1. Trowel applied patching material shall be as specified in Section 033760 "Trowel Applied Mortar." This material may be used for shallow removal and repair Work Items only.
- D. Execution
  - 1. Contractor shall locate and mark all Work areas as specified in Section 025140 "Surface Preparation for Patching," Article "Inspection." Contractor shall identify all critical repair work areas prior to start of work. Project Manager shall verify critical repair area identification.
  - 2. Procedure for delaminated, spalled and unsound concrete removal shall be as specified in Section 025140 "Surface Preparation for Patching," Article "Preparation."
  - 3. Project Manager shall inspect all cavities for condition according to Section 025140 "Surface Preparation for Patching," Article "Inspection of Repair Preparation."
  - 4. All steel exposed within cavities shall be cleaned to bare metal by sandblasting according to Section 025140 "Surface Preparation for Patching," Article "Cleaning of Reinforcement within Delamination and Spall Cavities," and damaged and defective reinforcement replaced as specified in Section 025140 "Surface Preparation for Patching," Article "Reinforcement and Embedded Materials in Repair Areas." Exposed steel shall be coated with an approved corrosion inhibitor coating as specified in Work Item 1.4 "Concrete Reinforcement."
  - 5. Contractor shall prepare cavities for patch placement as specified in Section 025140 "Surface Preparation for Patching," Article "Preparation of Cavity for Patch Placement."
  - 6. Shoring support shall be provided as necessary and in accordance with Work Item 1.3 "Concrete Shores and Reshores."
  - 7. Patch materials and associated reference specifications for patches in non-critical areas are listed in Work Item 5.0 "Concrete Beam and Joist Repair," Article "Materials," above.

- Patch installation procedures shall be in accordance with referenced specifications for selected material.
8. Area adjacent to repair shall be cleaned to Project Manager's satisfaction prior to leaving site.

**WI 6.10 COLUMN REPAIR – PARTIAL DEPTH**

- A. Refer to Work Item 6.0 "Concrete Column Repair" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 6.10 for specific requirements.
- B. Warranty
  1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

**WI 6.20 COLUMN REPAIR – COLUMN SPLICE GROUT**

- A. Refer to Work Item 6.0 "Concrete Column Repair" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 6.20 for specific requirements.
- B. Warranty
  1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

**WI 6.30 COLUMN REPAIR - CORBEL**

- A. Refer to Work Item 6.0 "Concrete Column Repair" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 6.30 for specific requirements.
- B. Warranty
  1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

**WI 7.0 CONCRETE WALL REPAIR**

- A. Scope of Work
  1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate existing spalls, locate and remove delaminated and unsound concrete, prepare cavities and place patching materials to restore concrete walls to original condition and appearance. Refer to Detail Series 7.0 for specific requirements.
- B. Warranty
  1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

## C. Materials

1. Trowel applied patching material shall be as specified in Section 033760 "Trowel Applied Mortar." This material may be used for shallow removal and repair Work Item only.

## D. Execution

1. Contractor shall locate and mark all Work areas as specified in Section 025140 "Surface Preparation for Patching," Article "Inspection."
2. Procedure for delaminated, spalled and unsound concrete removal shall be as specified in Section 025140 "Surface Preparation for Patching," Article "Preparation."
3. Project Manager shall inspect all cavities for condition according to Section 025140 "Surface Preparation for Patching," Article "Inspection of Repair Preparation."
4. All steel exposed within cavities shall be cleaned to bare metal by sandblasting according to Section 025140 "Surface Preparation for Patching," Article "Cleaning of Reinforcement within Delamination and Spall Cavities," and damaged and defective reinforcement replaced as specified in Section 025140 "Surface Preparation for Patching," Article "Reinforcement and Embedded Materials in Repair Areas." Exposed steel shall be coated with an approved corrosion inhibitor coating as specified in Section 033021 "Cast-in-Place Concrete."
5. Contractor shall prepare cavities for patch placement as specified in Section 025140 "Surface Preparation for Patching," Article "Preparation of Cavity for Patch Placement."
6. Patch materials and associated reference specifications are listed in Work Item 7.0 "Concrete Wall Repair," Article "Materials," above. Patch installation procedures shall be in accordance with referenced specifications for selected material.
7. Contractor shall take care to protect adjacent areas from overspray if "Shotcrete" is used. Area adjacent to repair shall be cleaned to Project Manager's satisfaction prior to leaving site.

**WI 7.10 WALL REPAIR – GROUT POCKETS**

- A. Refer to Work Item 7.0 "Concrete Wall Repair" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 7.10 for specific requirements.
- B. Warranty
  1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

**WI 8.0 PRECAST TEE BEAM REPAIR**

- A. Scope of Work
  1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals including shoring necessary to locate, support and repair damaged or deteriorated tee beams. Refer to Detail Series 8.0 for specific requirements.
- B. Warranty
  1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

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## C. Materials/Equipment

1. Trowel applied patching material shall be as specified in Section 033760 "Trowel Applied Mortar." This material may be used for shallow removal and repair Work Items only.
2. Chipping hammers shall be 15 lb or less unless directed by Project Manager.

## D. Execution

1. Contractor shall locate and mark tee beam repairs indicated on Drawings according to Section 025140 "Surface Preparation for Patching," Article "Inspection."
2. Contractor shall provide shoring as required in accordance with Section 033021 "Cast-in-Place Concrete." Submit Shop Drawings according to Section "Submittals" and receive Project Manager's approval prior to starting removal operations.
3. Procedure for delaminated, spalled and unsound concrete removal shall be as specified in Section 025140 "Surface Preparation for Patching," Article "Preparation."
4. Project Manager shall inspect all cavities for condition according to Section 025140 "Surface Preparation for Patching," Article "Inspection of Repair Preparation."
5. All steel exposed within cavities shall be cleaned to bare metal by sandblasting as specified in Section 025140 "Surface Preparation for Patching," Article "Cleaning of Reinforcement within Delamination and Spall Cavities," and damaged reinforcement replaced as specified in Section 025140 "Surface Preparation for Patching," Article "Reinforcement and Embedded Materials in Repair Areas." Exposed steel shall be coated with approved corrosion inhibitor coating as specified in Section "Concrete Reinforcement."
6. Contractor shall prepare cavities for patch placement in accordance with Section 025140 "Surface Preparation for Patching," Article "Preparation of Cavity for Patch Placement."
7. Patch materials and associated reference specifications are listed in Work Item 8.0 "Precast Tee Beam Repair," Article "Materials," above. Patch installation procedures shall be in accordance with referenced specifications for selected material.
8. Contractor shall maintain forms and shores in place until concrete has attained at least 75% of 28-day strength.
9. Area adjacent to repair shall be cleaned to Project Manager's satisfaction prior to leaving site.

**WI 8.10 TEE BEAM REPAIR - PARTIAL DEPTH / SHALLOW**

- A. Refer to Work Item 8.0 "Precast Tee Beam Repair" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 8.10 for specific requirements.
- B. Warranty
  1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds" and the **Construction Contract General Conditions** for additional information

**WI 8.20 TEE BEAM REPAIR - PARTIAL DEPTH / SHALLOW**

- A. Refer to Work Item 8.0 "Precast Tee Beam Repair" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 8.20 for specific requirements.
- B. Warranty
  1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds" and the **Construction Contract General Conditions** for additional information.

**WI 9.0 CRACKS AND JOINTS - EXPANSION JOINT EDGE PREPARATION****WI 9.10 EXPANSION JOINT PREPARATION – NEW BLOCKOUT**

## A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate the Work area, remove sound floor slab concrete as required, and place patch or fill material to prepare cavity to receive new expansion joint systems. Refer to Detail 9.10 for specific requirements and installation conditions. This Work shall be coordinated with Work Item 10.0 "Expansion Joint Repair and Replacement."

## B. Warranty

1. Warranty period shall be 5 years, reference Specification Section 079500, Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information

## C. Materials

1. Concrete repair materials shall be as specified in Section 033021 "Cast in Place Concrete."
2. Trowel applied material shall be as specified in Section 033760 "Trowel Applied Mortar."

## D. Execution

1. Contractor shall remove existing expansion materials in manner that minimizes damage to adjacent concrete. Alterations to existing expansion joint blockout required for installation of new expansion joint system shall be performed in accordance with Work Item 9.10 "Expansion Joint Preparation – New Blockout" and Section 025140 "Surface Preparation for Patching."
2. Contractor shall locate and mark all expansion joint installation areas as located on Drawings.
3. All concrete requiring removal from within marked boundaries shall be sawcut and chipped to dimensions detailed. Caution shall be exercised during sawcutting operations to avoid damaging existing reinforcement near surface of concrete.
4. Spalls and delaminations located within blockout shall be patched in accordance with Work Item 3.0 "Concrete Floor Repair."
5. Repair materials and associated reference specifications are listed in Work Item 9.10 "Expansion Joint Preparation – New Blockout," Article "Materials," above. Repair installation procedures shall be in accordance with referenced specifications for selected material.

**WI 9.20 EXPANSION JOINT PREPARATION – NEW CONCRETE WASH WITH BLOCKOUT**

## A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate Work area, remove sound floor slab concrete prepare cavity surface and install cast in place concrete wash and expansion joint blockout. Refer to Detail 9.20 for specific requirements. This Work shall be coordinated with Work Item 10.0 "Expansion Joint Repair and Replacement."

- B. Warranty
1. Warranty period shall be 5 years, reference Specification Section 079500, Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.
- C. Material
1. Concrete repair materials shall be as specified in Section 033021 "Cast in Place Concrete."
- D. Execution
1. Contractor shall remove existing expansion materials in manner that minimizes damage to adjacent concrete. Alterations to existing expansion joint blockout required for installation of new expansion joint system shall be performed in accordance with Work Item 9.2 "Expansion Joint Preparation – New Concrete Wash with Blockout" and Section 025140 "Surface Preparation for Patching."
  2. Contractor shall locate and mark wash installation areas as located on Drawings.
  3. All sound and unsound concrete shall be removed from within marked boundaries by sawcutting and chipping to sufficient width and depth as described in Detail 9.20. Caution shall be exercised during sawcutting operations to avoid damaging existing reinforcement near surface of concrete.
  4. Spalls and delaminations located within wash area shall be patched in accordance with "Concrete Floor Repair."
  5. Repair materials and associated reference specifications are listed in Work Item 9.20 "Expansion Joint Preparation – New Concrete Wash with Blockout," Article "Materials" above. Repair installation procedures shall be in accordance with referenced specifications for selected material.

**WI 9.30 EXPANSION JOINT PREPARATION – SIDEWALK/CURB**

- A. Scope of Work
1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate Work area, remove sound floor slab concrete prepare cavity surface and install cast in place concrete wash and expansion joint blockout. Refer to Detail 9.30 for specific requirements. This Work shall be coordinated with Work Item 10.0 "Expansion Joint Repair and Replacement."
- B. Warranty
1. Warranty period shall be 5 years, reference Specification Section 079500, Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.
- C. Material
1. Concrete repair materials shall be as specified in Section 033021 "Cast in Place Concrete."
- D. Execution

1. Contractor shall remove existing expansion materials in manner that minimizes damage to adjacent concrete. Alterations to existing expansion joint blockout required for installation of new expansion joint system shall be performed in accordance with Work Item 9.20 "Expansion Joint Preparation – New Concrete Wash with Blockout" and Section 025140 "Surface Preparation for Patching."
2. Contractor shall locate and mark sidewalk installation areas as located on Drawings.
3. All sound and unsound concrete shall be removed from within marked boundaries by sawcutting and chipping to sufficient width and depth as described in Detail 9.30. Caution shall be exercised during sawcutting operations to avoid damaging existing reinforcement near surface of concrete.
4. Spalls and delaminations located within wash area shall be patched in accordance with "Concrete Floor Repair."
5. Repair materials and associated reference specifications are listed in Work Item 9.30 "Expansion Joint Preparation – Sidewalk /Curb Article "Materials" above. Repair installation procedures shall be in accordance with referenced specifications for selected material.

**WI 9.40 EXPANSION JOINT PREPARATION – AT JERSEY BARRIER**

## A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate Work area, remove jersey barrier concrete, sidewalk/curbs concrete prepare cavity surface and allow for continuous expansion joint blockout. Re installation of concrete for sidewalks/curbs and jersey barrier are required as part of this Work item. Refer to Detail 9.40 for specific requirements. This Work shall be coordinated with Work Item 10.0 "Expansion Joint Repair and Replacement."

## B. Warranty

1. Warranty period shall be 5 years, reference Specification Section 079500, Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information

## C. Material

1. Concrete repair materials shall be as specified in Section 033021 "Cast in Place Concrete"

## D. Execution

1. Contractor shall remove existing expansion materials in manner that minimizes damage to adjacent concrete. Alterations to existing expansion joint blockout required for installation of new expansion joint system shall be performed in accordance with Work Item 9.40 "Expansion Joint Preparation –At Jersey Barrier" and Section 025140 "Surface Preparation for Patching."
2. Contractor shall locate and mark wash installation areas as located on Drawings.
3. All sound and unsound concrete shall be removed from within marked boundaries by sawcutting and chipping to sufficient width and depth as described in Detail 9.40. Caution shall be exercised during sawcutting operations to avoid damaging existing reinforcement.
4. Spalls and delaminations located within repair area shall be patched in accordance with "Concrete Floor Repair."



5. Repair materials and associated reference specifications are listed in Work Item 9.40 "Expansion Joint Preparation –At Jersey Barrier," Article "Materials" above. Repair installation procedures shall be in accordance with referenced specifications for selected material.

**WI 10.0 EXPANSION JOINT REPAIR AND REPLACEMENT**

## A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to remove existing expansion joints, prepare adjacent concrete and furnish and install new expansion joint system. Refer to Detail Series 10.0 for specific requirements.

## B. Warranty

1. Warranty period shall be 5 years, reference Specification Section 079500, Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

## C. Materials

1. Expansion joint system materials shall be as specified in Section 079500 "Expansion Joints System," installed in strict accordance with manufacturer's recommendations.
2. Concrete repair materials shall be as specified in Section 033021 "Cast in Place Concrete."
3. Trowel applied material shall be as specified in Section 033760 "Trowel Applied Mortar."

## D. Execution

1. Contractor shall remove existing expansion materials in manner that minimizes damage to adjacent concrete. Alterations to existing expansion joint blockout required for installation of new expansion joint system shall be performed in accordance with Work Item 9.0 "Floor Repair - Provide Expansion Joint Blockout" and Section 025140 "Surface Preparation for Patching."
2. Joint materials and associated reference specifications are listed in Work Item 10.0 "Expansion Joint Repair and Replacement," Article "Materials," above. Joint installation procedures shall be in accordance with referenced specifications and manufacturer's recommendations.
3. In-place testing: Prior to opening to traffic, test joint seal for leaks with 2 in. water depth maintained continuously for 4 hrs. Repair leaks revealed by examination of seal underside. Repeat test and repairs until all leaks stopped for full 4 hrs.

**WI 10.30 EXPANSION JOINT – COMPRESSION AT CANOPY BASES**

- A. Refer to Work Item 10.0 "Expansion Joint Repair and Replacement" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 10.30 for specific requirements.
- B. Warranty

1. Warranty period shall be 5 years, reference Specification Section 079500, Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

**WI 10.40 EXPANSION JOINT – HEAVY DUTY ROADWAY**

- A. Refer to Work Item 10.0 "Expansion Joint Repair and Replacement" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 10.40 for specific requirements.
- B. Warranty
  1. Warranty period shall be 5 years, reference Specification Section 079500, Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

**WI 10.50 EXPANSION JOINT – BRIDGE COMPRESSION SEAL**

- A. Refer to Work Item 10.0 "Expansion Joint Repair and Replacement" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 10.50 for specific requirements.
- B. Warranty
  1. Warranty period shall be 5 years, reference Specification Section 079500, Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

**WI 10.60 EXPANSION JOINT – AT STAIRWELL**

- A. Refer to Work Item 10.0 "Expansion Joint Repair and Replacement" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 10.60 for specific requirements.
- B. Warranty
  1. Warranty period shall be 5 years, reference Specification Section 079500, Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

**WI 10.70 EXPANSION JOINT –METAL COVER PLATE (SEISMIC)**

- A. Refer to Work Item 10.0 "Expansion Joint Repair and Replacement" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 10.70 for specific requirements.
- B. Warranty

1. Warranty period shall be 5 years, reference Specification Section 079500, Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

**WI 10.80 EXPANSION JOINT – VERTICAL COMPRESSION SEALS**

- A. Refer to Work Item 10.0 "Expansion Joint Repair and Replacement" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 10.80 for specific requirements.
- B. Warranty
  1. Warranty period shall be 5 years, reference Specification Section 079500, Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

**WI 11.0 CRACK AND JOINT REPAIR****WI 11.10 SEAL CRACKS AND JOINTS**

- A. Scope of Work
  1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate, prepare and seal random cracks and unsealed construction joints in concrete floor and/or topping. Refer to Detail 11.10 for specific requirements.
- B. Warranty
  1. Warranty period shall be 5 years, reference Specification Section 079233, Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.
- C. Materials
  1. Approved materials for use in this Work are specified in Section 079233 "Joint Sealants."
- D. Execution
  1. Contractor shall thoroughly clean and inspect concrete slabs and/or topping for cracks and unsealed construction joints. Those identified as either greater than 0.03 in. wide or showing evidence of water and/or salt staining on ceiling below shall be sealed. All cracks and joints identified for repair shall be marked with chalk to aid in precision routing. Obtain depths to top reinforcing bars in area of repair by use of a pachometer. Determine depth of electrical conduit (metal or plastic). Do not exceed this depth of routing where the crack to be repaired crosses the embedded items. Damage to embedded items will require repair or replacement at no cost to the Owner.
  2. Cracks and construction joints shall be ground or sawcut to an adequate width and depth as required by Work Item 11.10 Detail. Routing shall be performed by mechanized device that has positive mechanical control over depth and alignment of cut. Hand held

- power grinders with abrasive disks shall not be used on control/construction joints, but may be used on random cracks.
3. Cavities shall be thoroughly cleaned by either sandblasting or grinding to remove all laitance, unsound concrete and curing compounds which may interfere with adhesion. Groove shall be air blasted to remove remaining debris.
  4. Sealant materials and associated reference specifications are listed in Work Item 11.10 "Seal Cracks and Construction Joints," Article "Materials," above. Sealant installation procedures shall be in accordance with referenced specifications for selected material.
  5. Traffic topping manufacturer shall specify joint sealant type compatible with traffic topping. Crack and joint sealant work shall be incidental to traffic topping system.

**WI 11.20 CONTROL JOINT SEALANT**

## A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate and mark failed joint sealant, remove existing sealant, prepare edges and reseal joints and cracks. Refer to Detail 11.20 for specific requirements.

## B. Warranty

1. Warranty period shall be 5 years, reference Specification Section 079233, Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

## C. Materials

1. Approved materials for use in this Work are specified in Section 079233 "Joint Sealants."

## D. Execution

1. Contractor shall locate failed crack/joint sealant by visual inspection.
2. Contractor shall remove existing sealant from joints and/or cracks.
3. When existing joint dimensions do not conform to Detail 11.20, joints shall be routed or sawcut to an adequate width and depth as required by Work Item Detail. Routing shall be performed by mechanized device that has positive mechanical control over depth and alignment of cut.
4. Cavities shall be thoroughly cleaned by either sandblasting or grinding to remove all remaining sealant and unsound concrete which may interfere with adhesion. Groove shall also be air blasted to remove remaining debris.
5. Install sealants in accordance with sealant manufacturer's instructions and the specification Section 079233 "Joint Sealants."
6. Traffic topping manufacturer shall specify joint sealant type compatible with traffic topping.

**WI 11.30 VERTICAL JOINT SEALANT**

## A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate and install vertical joint sealant. Refer to Detail 11.30 for specific requirements.

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- B. Warranty
1. Warranty period shall be 5 years, reference Specification Section 079233, Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.
- C. Materials
1. Materials used shall be as specified in Section 079233 "Joint Sealants."
- D. Execution
1. Contractor shall locate and mark Work areas as located on Drawings.
  2. Joint shall be cleaned by sand and air blasting.
  3. Sealant shall be tooled concave. (No wet tooling will be allowed.) Joint preparation, backer rod and bond breaker shall be in accordance with sealant manufacturer's recommendations. Sealant materials shall be in accordance with specification Section 079233 "Joint Sealants."

**WI 11.50 EPOXY INJECTION – COLUMN CRACKS**

- A. Scope of Work
1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate cracks, prepare and pressure inject approved cracks with an epoxy resin so as to create waterproof barrier and/or structural repair as indicated in the Drawings. Refer to Detail 11.50 for specific requirements.
- B. Warranty
1. Warranty period shall be 5 years, reference Specification Section 079233, Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.
- C. Materials
1. Epoxy injection materials shall be as specified in Section 036300 "Epoxy Injection Systems."
- D. Execution
1. Epoxy injection materials shall be installed in accordance with Section 036300 "Epoxy Injection Systems."
  2. Contractor is responsible for location of all cracks requiring epoxy injection prior to start of Work.
  3. Project Manager will verify all cracks to be epoxy injected.
  4. No payment will be allowed for Work executed prior to Project Manager inspection and verification.
  5. Remove and patch all ports, holes, temporary seal materials to match existing conditions. This is considered incidental to the Work.

**WI 11.60 CHEMICAL INJECTION GROUTING**

## A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate, penetrations, cracks, prepare and inject approved penetrations, cracks, and joints with a chemical grout so as to create waterproof barrier as indicated on Drawings. Refer to Detail Series 11.60 for specific requirements.

## B. Warranty

1. Warranty period shall be **3** years, reference Specification Section 036400, Specification Section 01740 "Warranty and Bonds " and the Construction **Contract General Conditions** for additional information.

## C. Materials

1. Chemical Grout injection materials shall be as specified in Section 036400 "Chemical Injection Grouting."

## D. Execution

1. Chemical injection procedures, equipment, etc. shall be in accordance with Section 036400 "Chemical Injection Grouting."
2. Contractor is responsible for location of all utilities, penetrations, cracks, and joints requiring chemical injection prior to start of Work.
3. Project Manager will verify all areas to be chemical grout injected.
4. No payment will be allowed for Work executed prior to Project Manager inspection and verification.
5. **Grout quantities will be based on one (1) gallon of grout per fifteen (15) linear foot. Additional quantities of grout will be paid on a separate unit cost per gallon.**
6. **Contractor shall include 1.0 gallon of chemical grout injection material for each fifteen (15) linear foot being injected. If required, additional materials will be paid for on a T&M rate with PRIOR approval of Project Manager. Additional materials injected without Project Managers approval will NOT be paid for.**
7. Remove and patch all ports, holes, temporary seal materials to match existing conditions. This is considered incidental to the Work.

**WI 11.70 COVE SEALANT**

## A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to prepare concrete surfaces and install cove sealant between floor and vertical surfaces as shown on Drawings. Refer to Detail 11.70 for specific requirements.

## B. Warranty

1. Warranty period shall be **5** years, reference Specification Section 079233, Specification Section 01740 "Warranty and Bonds " and the Construction **Contract General Conditions** for additional information.

## C. Materials

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1. Joint sealant materials shall be as specified in Section 079233 "Joint Sealants."
2. Joint sealant material shall be compatible with traffic topping materials specified in Section 071800 "Traffic Coatings."

## D. Execution

1. Wall-floor intersection to be sealed shall be thoroughly cleaned by sandblasting to remove all contaminants and foreign material.
2. Entire Work area shall then be cleaned with compressed air to assure that all loose particles have been removed and that intersection is dry.
3. Properly prepared intersection shall be coated evenly and completely with joint primer material on each of intersecting faces in accordance with sealant manufacturer's recommendations.
4. After primer has cured, apply cove sealant to intersection such that sealant extends 0.75 in. onto each of intersecting faces.
5. Work cove sealant into joint so that all air is removed and tool to concave shape such that minimum throat dimension of no less than 0.5 in. is maintained.
6. Remove excess sealant and allow to cure.
7. Apply coating on horizontal and vertical surfaces where shown on Drawings in even layers in strict accordance with manufacturer's recommendations. Sealant material and associated reference specifications are listed in Work Item 11.70 "Cove Sealant," Article "Materials," above for traffic topping coating materials and installation requirements.

**WI 13.0 CONCRETE OVERLAY****WI 13.10 CONCRETE HEALER / SEALER FLOORS**

## A. Scope of Work

1. Work consists of providing all labor, materials, equipment, supervision and incidentals necessary to prepare surfaces and install protective healer/sealer system on concrete surfaces exposed to vehicular and/or pedestrian traffic or other structural members as required.

## B. Warranty

1. Warranty period shall be **1** year, reference Specification Section 01740 "Warranty and Bonds " and the Construction **Contract General Conditions** for additional information.

## C. Materials

1. Protective sealer system materials shall be as specified in Section 071900 "Water Repellents."

## D. Execution

1. All surfaces scheduled to receive protective sealer system shall be identified by Contractor and approved by Project Manager.
2. Floor surfaces shall be prepared by shotblast in accordance with Section 071900 " Water Repellents."
3. All other surfaces to be treated shall be brushed, waterblasted, or sandblasted as required and then airblasted prior to application. Use of waterblasting on vertical or

- overhead surfaces requires adequate drying time before application to achieve proper penetration.
4. Sealer application shall be as specified in referenced specification section listed in Work Item 15.0 "Protective Sealer," Article "Materials," above. Overhead and vertical surface application shall be by brush or pressure sprayer.

**WI 15.0 PROTECTIVE SEALER**

- A. Scope of Work
  1. Work consists of providing all labor, materials, equipment, supervision and incidentals necessary to prepare surfaces and install protective sealer system on concrete surfaces exposed to vehicular and/or pedestrian traffic and on bumper walls, or other structural members as required.
- B. Warranty
  1. Warranty period shall be **1** year, reference Specification Section 01740 "Warranty and Bonds " and the Construction **Contract General Conditions** for additional information.
- C. Materials
  1. Protective sealer system materials shall be as specified in Section 071900 "Water Repellents."
- D. Execution
  1. All surfaces scheduled to receive protective sealer system shall be identified by Contractor and approved by Project Manager.
  2. Floor surfaces shall be prepared by shotblast in accordance with Section 071900 " Water Repellents."
  3. All other surfaces to be treated shall be brushed, waterblasted, or sandblasted as required and then airblasted prior to application. Use of waterblasting on vertical or overhead surfaces requires adequate drying time before application to achieve proper penetration.
  4. Sealer application shall be as specified in referenced specification section listed in Work Item 15.0 "Protective Sealer," Article "Materials," above. Overhead and vertical surface application shall be by brush or pressure sprayer.

**WI 15.10 CONCRETE SEALER - FLOORS**

- A. Refer to Work Item 15.0 "Protective Sealer" for scope of Work, materials and procedure associated with this Work Item.
- B. Warranty
  1. Warranty period shall be **1** year, reference Specification Section 01740 "Warranty and Bonds " and the Construction **Contract General Conditions** for additional information.

**WI 16.0 TRAFFIC TOPPING**



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- A. Scope of Work
1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals, including installation of joint sealant materials, necessary to prepare existing floor surface and install traffic topping as shown on Detail 16.10 and Drawings. Coating of all vertical surfaces within Work area shall be incidental to installation of traffic topping.
- B. Warranty
1. Warranty period shall be **5** years, reference Specification Section 071800, Specification Section 01740 "Warranty and Bonds " and the Construction **Contract General Conditions** for additional information
- C. Materials
1. Approved materials for use in this Work are as specified in Section 071800 "Traffic Coatings."
- D. Execution
1. Floor surface preparation shall be performed by coating system applicator or under its direct supervision. Shotblast surface preparation is required for floors.
  2. Traffic topping shall be installed by licensed applicators in strict accordance with manufacturer's recommendations and referenced specification section listed in Work Item 16.0 "Traffic Topping," Article "Materials," above. Crack preparation including installation of joint sealant material or detail coating where required, is incidental to traffic topping work.
  3. Coating system shall be thoroughly cured prior to Work areas being returned to service.

**WI 16.10 TRAFFIC TOPPING - VEHICULAR**

- A. Refer to Work Item 16.0 "Traffic Topping" for scope of Work, materials and procedure associated with this Work Item. Refer to Detail 16.10 for specific requirements.
- B. Warranty
1. Warranty period shall be **5** years, reference Specification Section 071800, Specification Section 01740 "Warranty and Bonds " and the Construction **Contract General Conditions** for additional information.

**WI 16.20 TRAFFIC TOPPING – CURB**

- A. Refer to Work Item 16.0 "Traffic Topping" for scope of Work, materials and procedure associated with this Work Item.
- B. Warranty
1. Warranty period shall be **5** years, reference Specification Section 071800, Specification Section 01740 "Warranty and Bonds " and the Construction **Contract General Conditions** for additional information.

**WI 25.0 MECHANICAL - DRAINAGE****WI 25.20 MECHANICAL - SUPPLEMENTAL FLOOR DRAINS**

## A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to supplement existing floor drain system by installing additional drains. Work Item 25.30 "Pipe and Hangers" is directly related to this Work Item. Refer to Detail 25.20 for specific requirements.

## B. Warranty

1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

## C. Materials

1. Approved materials for this Work are as shown on Detail 25.20 and in Section 0220500 "Common Work Results for Plumbing."
2. Sealant materials shall be as specified in Section 079233 "Joint Sealants."

## D. Execution

1. Contractor shall locate and mark all areas where supplemental floor drains are to be installed.
2. Contractor shall verify low points on slab by ponding or elevation survey prior to locating drains.
3. Concrete preparation shall be as shown on Detail 25.20.
4. Drains shall be installed as shown on Detail 25.20.

**WI 25.30 MECHANICAL - PIPE AND HANGERS**

## A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to supplement existing floor drain system by installing pipe and hangers. Work Item 25.20 Work Item "Supplementary Floor Drains" is directly related to this Work Item. Refer to Detail 25.30 for specific requirements.

## B. Warranty

1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

## C. Materials

1. Approved materials for this Work are as shown on Detail 25.30 and in Section 220500 "Common Work Results for Plumbing."
2. Paint shall be as specified in Specification Section 099123 – "Painting"

## D. Execution

1. Contractor shall locate and mark all areas where supplemental floor drain piping is to be installed.
2. Pipes and hangers shall be installed as shown on Detail 25.30 and in accordance with referenced specification section listed in Work Item 25.30 "Pipe and Hangers," Article "Materials," above.

**WI 25.30A MECHANICAL – PIPE FITTINGS 4” ELBOW**

## A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to supplement existing floor drain system by installing pipe and fittings. Work Item 25.20 "Supplementary Floor Drains" is directly related to this Work Item.

## B. Warranty

1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

## C. Materials

1. Approved materials for this Work are in Section 220500 "Common Work Results for Plumbing."
2. Paint shall be as specified in Specification Section 099123 – "Painting"

## D. Execution

1. Contractor shall locate and mark all areas where supplemental floor drain piping is to be installed.
2. Pipes and hangers shall be installed as shown on Detail 25.30a and in accordance with referenced specification section listed in Work Item 25.30 "Pipe and Hangers," Article "Materials," above.

**WI 25.50 MECHANICAL – REPLACE EXISTING DRAINS**

## A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to remove existing floor drain, and concrete, install new drain and place concrete, and hook up new drain to existing pipe and hangers. Refer to Detail 25.50 for specific requirements.

## B. Materials

1. Approved materials for this Work are as shown on Detail 25.50 and in Section 220500- "Common Work for Plumbing " .
2. Paint shall be as specified in Specification Section 099123 – "Painting"

## C. Execution

1. Contractor shall verify drains to be replaced with Project Manager.
2. Contractor shall replace all dismantled connects with new no- hub connections.
3. Pipes and hangers shall be installed as shown on Detail 25.20 and in accordance with referenced specification section listed in Work Item "Pipe and Hangers," Article "Materials," above.
4. Concrete placement shall be as shown on Detail Series 3.60.
5. Drains shall be re- installed as shown on Detail 25.50
6. Contractor shall test all connections for leaks and repair prior to inspection.

**WI 25.60 MECHANICAL- DRAIN COVER AT SIDEWALK****A. Scope of Work**

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to remove existing floor draincover and concrete in sidewalk and reinstall after placement of new drain WI 25.50. Refer to Detail 25.60 for specific requirements.

**B. Materials**

1. Concrete repair materials shall be as specified in Section 033021 "Cast in Place Concrete."
2. Conventional steel reinforcement shall be as specified in Section 033021 "Cast-in-Place Concrete" and/or Work Item 1.4 "Concrete Reinforcement."

**B. Execution**

1. Contractor shall verify drain covers to be replaced with Project Manager.
2. Concrete placement shall be as shown on Detail Series 3.40
3. Contractor shall prepare cavities for patch placement in accordance with Section 025140 "Surface Preparation for Patching," Article "Preparation of Cavity for Patch Placement."
4. Drains shall be installed as shown on Detail 25.50

**WI 25.7 MECHANICAL – PAINT 4” PIPE****A. Scope of Work**

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to remove existing rust, existing paint, prepare surface of pipe for painting and install paint system to protect existing drainage pipe. Work Item "Mechanical-Paint 8” Standpipe" is directly related to this Work Item. Refer to Detail 25.70 for specific requirements.

**B. Materials**

1. Approved materials for use in this Work are as specified in Section "Painting."

**C. Execution**

1. Contractor shall locate all areas where drain piping is to be repaired. Pipes and hangers shall be adjusted to accommodate painting of the pipe and accessories as required for access. Pipe shall be returned to original position and support at completion of Work Item.

2. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with the Steel Structures Painting Council's (SSPC) recommendations
3. Ferrous Metals: Remove exposed rust conditions in accordance with the Steel Structures Painting Councils SSPC, level SP-3 recommendations.

**WI 25.8 MECHANICAL – PAINT 5” – 6” PIPE****A. Scope of Work**

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to remove existing rust, existing paint, prepare surface of pipe for painting and install paint system to protect existing drainage pipe. Work Item "Mechanical-Paint Pipe" is directly related to this Work Item. Refer to Detail 25.80 for specific requirements.

**B. Materials**

1. Approved materials for use in this Work are as specified in Section "Painting."

**C. Execution**

1. Contractor shall locate all areas where stand pipe is to be repaired.
2. Pipes and pipe guards shall be adjusted to accommodate painting of the pipe and accessories as required for access. Pipe shall be returned to original position and support at completion of Work Item. Painting of pipe guards is incidental to Work Item.
3. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with the Steel Structures Painting Council's (SSPC) recommendations.
4. Ferrous Metals: Remove exposed rust conditions in accordance with the Steel Structures Painting Councils SSPC, level SP-3 recommendations.

**WI 43.6 ARCHITECTURAL REPAIRS – CLEAN ATRIUM SPANDRELS****A. Scope of Work**

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to clean façade surfaces using approved cleaning products and techniques.
2. Preliminary work includes sample mock-up cleanings using various combinations of cleaning products and techniques to establish required end results to be applied to the balance of areas to be cleaned.
3. Work includes pre-treatment, containment, post-treatment and disposal of run-off/by-products from cleaning operations as required to meet local requirements of jurisdiction where project is located. Coordinate and verify requirements with local agencies as required prior to start of cleaning work.

**B. Materials**

1. Cleaning products used shall not damage substrates. Use only products shown to effectively clean substrates without damage. Submit to Project Manager for review.

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2. Cleaning/rinse water shall be potable water with mineral content that will not stain cleaned building surfaces. Treat/filter water prior to use if required to eliminate staining potential.
3. Equipment used for application of cleaning products/media shall be adjusted and calibrated as required on an ongoing basis to keep from damaging existing substrates.
4. Specific products and techniques shall be as stated in the applicable work items.

## C. Execution

1. Perform sample cleaning mock-ups as described in "Scope of Work" at existing building location(s) determined by Project Manager.
2. Mask all surfaces that may be adversely affected by run-off from cleaning operations. Do not allow cleaning materials/run-off to enter building air intakes, coordinate work at and near these areas with building operations staff.
3. Perform cleaning at times acceptable to Project Manager with regard to impact of cleaning materials and operations on building operations and impact on the general public, pedestrians and property surrounding the project site.
4. If required by local codes/regulations, collect and treat run-off water to levels acceptable for release to local sewers.
5. Rinse all surfaces after cleaning as required to remove all residual cleaning materials. More than one rinse may be required depending on cleaning materials and building conditions.

**WI 45.0 PAINTING****WI 45.1 TRAFFIC MARKINGS –ROADWAY AREA**

## A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate, layout and paint parking stall stripes, traffic arrows, crosswalks, accessible stall access aisles, curbs, symbols, stop bars and all other existing pavement markings.
2. Stripes shall match all existing marks and be provided at same locations.
3. Remove existing stripes in those locations where they conflict with new striping layout.

## B. Warranty

1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

## C. Materials

1. Painting materials shall be latex based as specified in Section 099120 "Pavement Marking."

## D. Execution

1. Contractor shall prepare drawing of existing traffic markings layout in repair areas prior to starting with repairs. Contractor shall note stall width, angle of parking, directional traffic arrows and all other existing pavement markings.
2. Contractor shall submit striping plan for Project Manager's approval.

3. Contractor shall locate and layout Work areas as indicated on Drawings and shall match existing pavement markings, except as directed otherwise by Project Manager.
4. Where existing pavement markings conflict with new striping layout, remove conflicting pavement markings as indicated in Division 9 Section 099120 "Pavement Marking."
5. Project Manager shall inspect all layout and surface preparation for conditions in accordance with Section 099120 "Pavement Marking."
6. Paint materials and associated referenced specifications are listed in Article "Materials," above. Procedures shall be in accordance with referenced specifications.

#### WI 45.10A TRAFFIC MARKINGS –BAGGAGE AREA

##### A. Scope of Work

1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to locate, layout and paint parking stall stripes, traffic arrows, crosswalks, accessible stall access aisles, curbs, symbols, stop bars and all other existing pavement markings.
2. Stripes shall match all existing marks and be provided at same locations.
3. Remove existing stripes in those locations where they conflict with new striping layout.

##### B. Warranty

1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.

##### C. Materials

1. Painting materials shall be latex based as specified in Section 099120 "Pavement Marking."

##### D. Execution

1. Contractor shall prepare drawing of existing parking layout in repair areas prior to starting with repairs. Contractor shall note stall width, angle of parking, directional traffic arrows and all other existing pavement markings.
2. Contractor shall submit striping plan for Project Manager's approval.
3. Contractor shall locate and layout Work areas as indicated on Drawings and shall match existing pavement markings, except as directed otherwise by Project Manager.
4. Where existing pavement markings conflict with new striping layout, remove conflicting pavement markings as indicated in Section 099120 "Pavement Marking."
5. Project Manager shall inspect all layout and surface preparation for conditions in accordance with Section 099120 "Pavement Marking."
6. Paint materials and associated referenced specifications are listed in Article "Materials," above. Procedures shall be in accordance with referenced specifications.

#### WI 45.4 PAINT INVERTED TEE BEAMS

##### A. Scope of Work

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1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to contain, with full height barriers, debris and paint during operations and prepare, prime and paint precast inverted tee beams items as located on Drawings.
- B. Warranty
1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.
- C. Materials
1. Sherwin Williams Pro-Cryl Universal Primer, B66-310 Series, or approved equal
  2. Sherwin Williams Sher-Crete, Flexible Waterproofer, A5 Series, or approved equal
- D. Execution
1. Contractor shall locate and verify with Project Manager all Work areas.
  2. Contractor shall verify color selection with Project Manager prior to start of Work.
  3. Contractor shall take all necessary measures to contain, with full height barriers, preparation debris and paint to immediate Work area to protect public from injury and vehicles and public property from damage.
  4. Contractor shall prepare all surfaces in accordance with SSPC-SP13 and Section 099113 "Exterior Painting."
  5. Contractor shall air blast and remove all debris from Work area prior to application of primer or paint.
  6. Apply primer according to Section 099113 "Exterior Painting" and in strict accordance with manufacturer's recommendations.
  7. Contractor shall apply paint according to Section 099113 "Exterior Painting" and in strict accordance with manufacturer's recommendations.

**WI 45.5 PAINT COLUMNS- ELASTOMERIC**

- A. Scope of Work
1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to contain, with full height barriers, debris and paint during operations and prepare, prime and paint precast columns as located on Drawings.
- B. Warranty
1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.
- C. Materials
1. Sherwin Williams Pro-Cryl Universal Primer, B66-310 Series, or approved equal
  2. Sherwin Williams Sher-Crete, Flexible Waterproofer, A5 Series, or approved equal
- D. Execution
1. Contractor shall locate and verify with Project Manager all Work areas.
  2. Contractor shall verify color selection with Project Manager prior to start of Work.



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3. Contractor shall take all necessary measures to contain, with full height barriers, preparation debris and paint to immediate Work area to protect public from injury and vehicles and public property from damage.
4. Contractor shall prepare all surfaces in accordance with SSPC-SP13 and Section 099113 "Exterior Painting."
5. Contractor shall air blast and remove all debris from Work area prior to application of primer or paint.
6. Apply primer according to Section 099113 "Exterior Painting" and in strict accordance with manufacturer's recommendations.
7. Contractor shall apply paint according to Section 099113 "Exterior Painting" and in strict accordance with manufacturer's recommendations.

**WI 45.6 SANDBLAST & EPOXY PAINT – COLUMN CONNECTIONS**

## B. Scope of Work

8. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to contain, with full height barriers, sandblasting debris and paint during operations and prepare, prime and paint all structural steel and miscellaneous metal items as located on Drawings.

## E. Warranty

1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds" and the **Construction Contract General Conditions** for additional information.

## F. Materials

1. Sherwin Williams Kem Kromik Universal Metal Primer.
2. Sherwin Williams Steel Master™ 9500 Coating, B56-300 Series.

## G. Execution

1. Contractor shall locate and verify with Project Manager all Work areas.
2. Contractor shall verify color selection with Project Manager prior to start of Work.
3. Contractor shall take all necessary measures to contain, with full height barriers, sandblasting debris and paint to immediate Work area to protect public from injury and vehicles and public property from damage.
4. Contractor shall solvent clean any surface area with oil or grease build-up prior to receiving sandblast preparation in accordance with SSPC-SP1 and Section 099113 "Exterior Painting."
5. Contractor shall sandblast all surfaces with surface corrosion to near-white metal blast cleaning in accordance with SSPC-SP10 and Section 099113 "Exterior Painting."
6. Contractor shall air blast and remove all debris from Work area prior to application of primer or paint.
7. Contractor shall apply primer to all sandblasted metal surfaces on same day (within 8 hrs) as sandblast operations. Apply primer according to Section 099113 "Exterior Painting" and in strict accordance with manufacturer's recommendations.
8. Contractor shall apply paint in accordance with referenced specification section listed in Work Item "Paint Structural Steel," Article "Materials," above.

**WI 45.7 PAINT CANOPY BASES**

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- A. Scope of Work
1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to contain, with full height barriers, debris and paint during operations and prepare, prime and paint concrete canopy bases as located on Drawings.
- B. Warranty
1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.
- C. Materials
1. Sherwin Williams Pro-Cryl Universal Primer, B66-310 Series, or approved equal
  2. Sherwin Williams Sher-Crete, Flexible Waterproofer, A5 Series, or approved equal
- D. Execution
1. Contractor shall locate and verify with Project Manager all Work areas.
  2. Contractor shall verify color selection with Project Manager prior to start of Work.
  3. Contractor shall take all necessary measures to contain, with full height barriers, preparation debris and paint to immediate Work area to protect public from injury and vehicles and public property from damage.
  4. Contractor shall prepare all surfaces in accordance with SSPC-SP13 and Section 099113 "Exterior Painting."
  5. Contractor shall air blast and remove all debris from Work area prior to application of primer or paint.
  6. Apply primer according to Section 099113 "Exterior Painting" and in strict accordance with manufacturer's recommendations.
  7. Contractor shall apply paint according to Section 099113 "Exterior Painting" and in strict accordance with manufacturer's recommendations.

**WI 45.8 PAINT CANOPY COLUMN BASES**

- A. Scope of Work
1. Work consists of furnishing all labor, materials, equipment, supervision and incidentals necessary to contain, with full height barriers, debris and paint during operations and prepare, prime and paint concrete column bases items as located on Drawings.
- B. Warranty
1. Warranty period shall be 1 year, reference Specification Section 01740 "Warranty and Bonds " and the **Construction Contract General Conditions** for additional information.
- C. Materials
1. Sherwin Williams Pro-Cryl Universal Primer, B66-310 Series, or approved equal
  2. Sherwin Williams Sher-Crete, Flexible Waterproofer, A5 Series, or approved equal
- D. Execution
1. Contractor shall locate and verify with Project Manager all Work areas.

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2. Contractor shall verify color selection with Project Manager prior to start of Work.
3. Contractor shall take all necessary measures to contain, with full height barriers, preparation debris and paint to immediate Work area to protect public from injury and vehicles and public property from damage.
4. Contractor shall prepare all surfaces in accordance with SSPC-SP13 and Section 099113 "Exterior Painting."
5. Contractor shall air blast and remove all debris from Work area prior to application of primer or paint.
6. Apply primer according to Section 099113 "Exterior Painting" and in strict accordance with manufacturer's recommendations.
7. Contractor shall apply paint according to Section 099113 "Exterior Painting" and in strict accordance with manufacturer's recommendations.

**END OF SECTION 020010**

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**SECTION 025130 - GENERAL CONCRETE SURFACE PREPARATION****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Include, but are not limited to, the Contract Drawings, Construction Contract General Conditions and Special Conditions. For a complete list of the Contract Documents, please refer to Article I of Contract.

**1.2 DEFINITIONS**

- A. **DELAMINATIONS:** Fracture planes, "internal cracks," within concrete. Typically these fractures are parallel to the member face and vary in depth.
- B. **NEAR-VERTICAL CHIPPED EDGES:** Provide an edge dressed to within 20° of perpendicular of finished surface.
- C. **SPALLS:** Potholes, cavities or voids in floor slabs, beams, columns, and walls. Usually result of delamination migrating to face of concrete member. When fracture finally reaches surface, concrete encompassed by delamination breaks away, resulting in spall.
- D. **UNSOOUND CONCRETE:** Concrete exhibiting one or more of:
1. Incipient fractures present beneath existing delaminated or spalled surfaces.
  2. Honeycombing.
  3. Friable or punky areas.
  4. Deterioration from freeze-thaw action.
- E. **SCALING:** Deterioration which attacks mortar fraction (paste) of concrete mix. First appears as minor flaking and disintegration of concrete surface. Scaling eventually progresses deeper into concrete, exposing aggregate which breaks away. Concrete scaling is caused by freeze-thaw action. If concrete is frozen in saturated state, excess water freezing in concrete causes high internal stresses.
- F. **SHOTBLASTING:** Scarification of concrete surfaces using an abraded metal shot-rebound. See Corps of Engineer's Manual EM 1110-2-2002 and the National Cooperative Highway Research Program's Report #99 for a more detailed definition.

**PART 2 - PRODUCTS (NOT APPLICABLE)****PART 3 - EXECUTION (NOT APPLICABLE)**

**END OF SECTION 025130**

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## SECTION 025140 - SURFACE PREPARATION FOR PATCHING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Include, but are not limited to, the Contract Drawings, Construction Contract General Conditions and Special Conditions. For a complete list of the Contract Documents, please refer to Article I of Contract.

#### 1.2 SUMMARY

- A. This Section includes the provision of all labor, materials, equipment, supervision and incidentals necessary to locate and remove all delaminated and unsound concrete and preparation of cavities created by removal to receive patching material and preparation of existing surface spalls and potholes to receive patching material.
- B. Related Sections: Following Sections contain requirements that relate to this Section:
  - 1. Division 03 Section 033021 "Cast-in-Place Concrete Restoration"
  - 2. Division 03 Section 033760 "Trowel Applied Mortar"

#### 1.3 REFERENCES

- A. "Specifications for Structural Concrete for Buildings" (ACI 301) by American Concrete Institute, herein referred to as ACI 301, is included in total as specification for this structure except as otherwise specified herein.
- B. Comply with provisions of following codes, specifications and standards except where more stringent requirements are shown on Drawings or specified herein:
  - 1. "Guide for Repair of Concrete Bridge Superstructures" (ACI 546.1), American Concrete Institute.

### PART 2 - PRODUCTS (NOT APPLICABLE)

### PART 3 - EXECUTION

#### 3.1 INSPECTION

- A. Floor Slabs:
  - 1. Floor slab delaminations: locate by sounding surface with hammer, rod, or chain drag.
  - 2. When delaminated area is struck, distinct hollow sound is heard.
  - 3. Contractor: sound all designated floors for delaminations.

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4. Certain structural systems that contain thin slab thicknesses with Welded Wire Reinforcement or other small diameter reinforcing, such as waffle slab or precast tees, may have significant deterioration without evidence of delaminations. These structural systems require qualified personnel to provide additional inspections, primarily visual in nature, to define the extent of deterioration.
  5. Contractor: Visually inspect thin slab thicknesses with small diameter reinforcing for deterioration.
- B. Vertical and Overhead Surfaces:
1. Vertical and overhead surface delaminations: locate by sounding appropriate member with hammer or rod.
  2. Cracks, usually horizontal in orientation along beam faces, and vertical in orientation near column corners are indicators of delaminated concrete.
  3. Contractor: sound only vertical and overhead surfaces that show evidence of cracking and/or salt and water staining.
- C. Delaminated areas, once located by Contractor, shall be further sounded to define limits. Mark limits with chalk or paint.
- D. Contractor: locate spalls by visual inspection and mark boundaries with chalk or paint after sounding surface.
- E. Project Manager will define and mark additional unsound concrete areas for removal, if required.
- F. Areas to be removed shall be as straight and rectangular as practical to encompass repair and provide neat patch.
- G. Contractor: Locate and determine depth of all embedded REINFORCEMENT, POST-TENSIONING TENDONS, and ELECTRICAL CONDUIT in repair area and mark these locations for reference during concrete removal. Do **NOT** nick or cut any embeds unless approved by Project Manager.

### 3.2 PREPARATION

- A. **Temporary shoring may be required at concrete floor repair areas exceeding 5 sq ft and at any beam, joist, or column repair. Contractor: Review all marked removal and preparation areas and request clarification by Project Manager of shoring requirements in questionable areas. Shores shall be in place prior to concrete removal and cavity preparation in any area requiring shores.**
- B. Delaminated, spalled and unsound concrete floor areas: mark boundaries. All concrete shall be removed from within marked boundary to minimum depth of 0.75 in. using 15 to 30 lb chipping hammers equipped with chisel point bits. When directed by Project Manager, chipping hammers less than 15 lb shall be used to minimize damage to sound concrete. If delaminations exist beyond minimum removal depth, chipping shall continue until all unsound and delaminated concrete has been removed from cavity.
- C. Where embedded reinforcement or electrical conduit is exposed by concrete removal, exercise extra caution to avoid damaging it during removal of unsound concrete. If bond between exposed embedded reinforcement and adjacent concrete is impaired by Contractor's removal

operations, Contractor shall perform additional removal around and beyond perimeter of reinforcement for minimum of 0.75 in. along entire length affected at no cost to Owner.

- D. If rust is present on embedded reinforcement where it enters sound concrete, additional removal of concrete along and beneath reinforcement required. Additional removal shall continue until non-rusted reinforcement is exposed, or may be terminated as Project Manager directs.
- E. Sawcut to depth of 0.75 in. into floor slab, unless otherwise noted. For vertical and overhead surfaces marked boundary may be sawcut, ground or chipped to depth of 0.5 in. to 0.625 in. into existing concrete, measured from original surface. All edges shall be straight and patch areas square or rectangular-shaped. Diamond blade saw or grinder with abrasive disk suitable for cutting concrete is acceptable for performing work. Edge cut at delamination boundary shall be dressed perpendicular to member face. It shall also be of uniform depth, for entire length of cut. Exercise extra caution during sawcutting to avoid damaging existing reinforcement (ESPECIALLY POST-TENSIONING TENDONS AND SHEATHING) and electrical conduit and any other embedded items near surface of concrete. Any damage to existing reinforcement, post-tensioning tendons or sheathing during removals shall be repaired by Contractor with Project Manager-approved methods at no additional cost to Owner.

### 3.3 INSPECTION OF REPAIR PREPARATION

- A. After removals are complete, but prior to final cleaning, cavity and exposed reinforcement shall be inspected by Contractor and verified by Project Manager for compliance with requirements of this Section. Where Project Manager finds unsatisfactory cavity preparation, Project Manager shall direct Contractor to perform additional removals. Project Manager shall verify areas after additional removals.
- B. Contractor shall inspect embedded reinforcement and conduits exposed within cavity for defects due to corrosion or damage resulting from removal operations. Contractor shall notify Project Manager of all defective and damaged reinforcement or conduits. Replacement of damaged or defective reinforcement or conduits shall be performed according to this Section and as directed by Project Manager.

### 3.4 REINFORCEMENT AND EMBEDDED MATERIALS IN REPAIR AREAS

- A. All embedded reinforcement exposed during surface preparation that has lost more than 20% (15% if 2 or more consecutive parallel bars and/or tendons are affected) of original cross-section due to corrosion shall be considered DEFECTIVE. All non-defective exposed reinforcement that has lost section to extent specified above as direct result of Contractor's removal operations shall be considered DAMAGED.
- B. **Embedded materials** including, but not limited to, electrical conduit, corrosion protection systems and snow/ice melting equipment **shall be protected by Contractor** during removal operations. **Damage due to removal operations shall be repaired by Contractor in accordance with national code requirements at no cost to Owner.** Embedded materials which are defective due to pre-existing conditions may be repaired or replaced by Contractor or abandoned at Owner's option and cost.
- C. Supplement defective or damaged embedded reinforcement by addition of reinforcement of equal diameter with Class "B" minimum splice per ACI 318 beyond damaged portion of



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reinforcement. Secure new reinforcement to existing reinforcement with wire ties and/or approved anchors. Supplemental reinforcement shall be ASTM A615 Grade 60 steel installed in accordance with Section 033021 "Cast-in-Place Concrete Restoration." Tendon supplement or repair materials, when applicable, shall be as required by Section 020010 "Work Items."

- D. Loose and supplemental reinforcement exposed during surface preparation shall be securely anchored prior to patch placement. Loose reinforcement shall be adequately secured by wire ties to bonded reinforcement or shall have drilled-in anchors installed to original concrete substrate. Drilled-in anchors shall be Powers "Tie-Wire Lok-Bolt" anchors, ITW Ramset/Red Head "TW-1400" anchor, or approved equivalent. Supplemental reinforcing needed to be held off substrate shall be adequately secured by drilled-in anchors installed to original concrete substrate with Powers "Tie-Wire Spike", ITW Ramset/Red Head Redi-Drive "TD4-112" anchors, or approved equivalent. Project Manager will determine adequacy of wire ties and approve other anchoring devices prior to their use. Securing loose and supplemental reinforcement is incidental to surface preparation and no extras will be allowed for this Work.
- E. Concrete shall be removed to provide minimum of 3/4 in. clearance on all sides of defective or damaged exposed embedded reinforcement that is left in place. Minimum of 1.5-in. concrete cover shall be provided over all new and existing reinforcement. Concrete cover over reinforcement may be reduced to 1 in. with Project Manager's approval if coated with an approved epoxy resin.
- F. Supplemental reinforcement and concrete removals required for repairs of defective or damaged reinforcement shall be paid for as follows:
1. Concrete removals and supplemental reinforcement required for repairs of DEFECTIVE reinforcement shall be paid for by Owner at unit price bid.
  2. Concrete removals and supplemental reinforcement required for repairs of DAMAGED reinforcement shall be paid for by Contractor.

**3.5 CLEANING OF REINFORCEMENT WITH DELAMINATION AND SPALL CAVITIES**

- A. All exposed steel shall be cleaned of rust to bare metal by sandblasting. Cleaning shall be completed immediately before patch placement to insure that base metal is not exposed to elements and further rusting for extended periods of time. Project Manager may require entire bar diameter be cleaned.
- B. After all sandblasting operations and cleanup are completed, paint all exposed steel with an approved epoxy. Protect prepared surfaces from damage prior to and during patch placement.

**3.6 PREPARATION OF CAVITY FOR PATCH PLACEMENT**

- A. Cavities will be examined prior to commencement of patching operations. Sounding surface shall be part of examination. Any delamination noted during sounding shall be removed as specified in this Section.
- B. Cavities shall be sandblasted. Airblasting is required as final step to remove sand. All debris shall be removed from site prior to commencement of patching.

**END OF SECTION 025140**

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**SECTION 033021 - CAST-IN-PLACE CONCRETE RESTORATION****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Include, but are not limited to, the Contract Drawings, Construction Contract General Conditions and Special Conditions. For a complete list of the Contract Documents, please refer to Article I of Contract.

**1.2 SUMMARY**

- A. This Section specifies cast-in-place concrete, including reinforcement, concrete materials, mix design, placement procedures, and finishes.

**1.3 SUBMITTALS**

- A. General: In addition to the following, comply with submittal requirements in ACI 301.
- B. Product Data: For each type of manufactured material and product indicated.
- C. Submit concrete mixture proportions to Project Manager for each concrete mixture. Submit alternate mixture proportions when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.
  - 1. Provide mixture proportions not less than four weeks before placing concrete and not less than one week before pre-installation conference (pre-concrete meeting).
  - 2. Proportion mixtures as defined in ACI 301 Section 4 header "Proportioning," Mixtures shall be proportioned by party other than Testing Agency responsible for testing Project concrete.
  - 3. Proportion mixtures to minimize effects of thermal and drying shrinkage.
  - 4. Submit mixture proportions submission form for each concrete mixture, which identifies the following:
    - a. Mixture Proportions Identification and use.
    - b. Method used for documentation of required average compressive strength, (ACI 301 Section 4 – *Field test data* or *Trial mixtures*).
    - c. Gradation of fine and coarse aggregates.
    - d. Proportions of all ingredients including all admixtures added either at time of batching or at job site.
    - e. Water/cementitious materials ratio.
    - f. Slump, ASTM C143.
    - g. Certification of the chloride content of admixtures.
    - h. Air Content:
      - 1) Of freshly mixed concrete by pressure method, ASTM C231, or volumetric method, ASTM C173.

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- 2) Of hardened concrete by microscopical determination, including parameters of air-void system, ASTM C457.
    - i. Freeze-thaw resistance, ASTM C457 and C666. If super-plasticized concrete cannot meet hardened air content requirements of Part 2, ASTM C666 laboratory test result of specimens with concrete mixture proportions similar to proposed mixture for project shall be submitted for review by Project Manager. Report air void parameters (spacing and specific surface area in accordance with ASTM C457) (at point of placement) of specimens tested. Test specimens shall contain specified air system (within plus or minus 1.5 percent) and high-range water-reducer (super-plasticizer) used in concrete for project. Report relative durability factor of concrete for specimens tested in accordance with Procedure A of ASTM C666. Acceptable concrete durability factor greater than 90 percent (> 90%) at 300 test cycles. Relative durability factor of concrete containing superplasticizer greater than or equal to 80 percent ( $\geq 80\%$ ) compared with reference.
    - j. Density (Unit weight) of concrete, ASTM C138.
    - k. Strength at 7 and 28 days, (or as required by Contractor for high early strength concrete) ASTM C39.
    - l. Water soluble chloride ion content of concrete: ASTM C 1218.
    - m. Certificate of analysis of coal fly ash: Comply with ASTM C618, Class F:
- D. Testing Agency: Promptly report all field concrete test results to Project Manager, Contractor and Concrete Supplier. Include following information:
1. See Article "Quality Assurance."
  2. Density (unit weight) of concrete, ASTM C 138.
  3. Slump, ASTM C 143.
  4. Air content of freshly mixed concrete by pressure method, ASTM C 231 or volumetric method, ASTM C 173.
  5. Concrete temperature at placement time. ASTM C 1064.
  6. Air temperature at placement time.
  7. Strength determined in accordance with ASTM C 39.

**1.4 QUALITY ASSURANCE**

- A. Testing Agency:
1. Independent testing laboratory employed by Contractor and acceptable to Project Manager.
  2. Accredited by AASHTO under ASTM C1077. Testing laboratory shall submit documented proof of ability to perform required tests.
- B. Sampling and testing of concrete and mortar shall be performed by ACI certified Concrete Field Testing Technicians Grade 4. Certification shall be no more than 3 yrs old.
- C. Testing Agency is responsible for conducting, monitoring and reporting results of all tests required under this Section. Testing Agency has authority to reject concrete or mortar not meeting Specifications.
- D. Testing Agency shall submit following information for field testing of concrete unless modified in writing by Project Manager:

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1. Project name and location.
  2. Contractor's name.
  3. Testing Agency's name, address and phone number.
  4. Concrete supplier.
  5. Date of report.
  6. Testing Agency technician's name (sampling and testing).
  7. Placement location within structure.
  8. Concrete mix data (quantity and type):
    - a. Cement.
    - b. Fine aggregates.
    - c. Coarse aggregates.
    - d. Water.
    - e. Water/cement ratio.
    - f. Other admixtures.
  9. Weather data:
    - a. Air temperatures.
    - b. Weather.
    - c. Wind speed.
  10. Field test data:
    - a. Date, time and place of test.
    - b. Slump.
    - c. Air content.
    - d. Unit weight.
    - e. Concrete temperature.
  11. Compressive test data:
    - a. Cylinder number.
    - b. Age of concrete when tested.
    - c. Date and time of cylinder test.
    - d. Curing time (field and lab).
    - e. Compressive strength.
    - f. Type of break.
- E. Installer Qualifications: An experienced installer who has completed concrete work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- F. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment. Manufacturer shall also be certified according to the National Ready Mixed Concrete Association's Certification of Ready Mixed Concrete Production Facilities.
- G. Source Limitations: Obtain each type of cement of the same brand from the same manufacturer's plant, each aggregate from one source, and each admixture from the same manufacturer.

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- H. Comply with ACI 301, "Specification for Structural Concrete," including the following, unless modified by the requirements of the Contract Documents.
1. General requirements, including submittals, quality assurance, acceptance of structure, and protection of in-place concrete.
  2. Formwork and form accessories.
  3. Steel reinforcement and supports.
  4. Concrete mixtures.
  5. Handling, placing, and constructing concrete.
- I. Mockups: Before casting concrete, place mockup slab to demonstrate surface finish, texture, and standard of workmanship. Build panel approximately 100 sq. ft.

**PART 2 - PRODUCTS****2.1 FORMWORK**

- A. Furnish formwork and form accessories according to ACI 301.

**2.2 STEEL REINFORCEMENT**

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.
- B. Epoxy-coated Reinforcing Bars: ASTM A775
- C. Plain-Steel Welded Wire Fabric: ASTM A 185, fabricated from as-drawn steel wire into flat sheets, mats only. Roll stock prohibited.
- D. Provide bar supports according to CRSI's "Manual of Standard Practice." Use all-plastic bar supports for epoxy-coated reinforcement and supports in contact with exposed concrete surface.

**2.3 CONCRETE MATERIALS**

- A. Ready Mixed Concrete: Obtain concrete from plant with current certification from National Ready Mixed Concrete Association.
- B. Portland Cement: ASTM C 150, Types I or II or Type I/II.
- C. Fly Ash: ASTM C618, Class F.
- D. Aggregates (ACI 301, Article 4.2.1):
1. Normal-Weight Aggregate: ASTM C 33, uniformly graded, not exceeding 3/4-inch nominal size, shall be chloride free.
  2. Normal weight concrete aggregates:

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- a. Coarse aggregate: Crushed and graded limestone or approved equivalent conforming to ASTM C33, Class Designation 5S.
  - b. Fine aggregate: Natural sand conforming to ASTM C33 and having preferred grading shown for normal weight aggregate in ACI 302.1R, Table 4.2.1.
3. Coarse aggregate: Nominal sizes indicated below, conforming to ASTM C33, Table 2:
- a. 0.375 in. for patch cavities 0.75 to 1.5 in. deep.
  - b. 0.75 in. for patch cavities greater than 1.5 in. deep and overlay work.
4. Chloride Ion Level: Chloride ion content of aggregates shall be tested by laboratory making trial mixes. Also, total water soluble chloride ion content of mix including all constituents shall not exceed 0.15% chloride ions by weight of cement for reinforced concrete. Test to determine chloride ion content shall conform to Test Method ASTM C1218.
- E. Water: Potable and complying with ASTM C 1602.

**2.4 ADMIXTURES**

- A. Concrete supplier and manufacturer shall certify compatibility of all ingredients in each mix design.
- B. Use admixtures in strict accordance with manufacturer's recommendations.
- C. Prohibited Admixtures: Calcium chloride or admixtures containing more than 0.15% chloride ions, by weight of admixture, are not permitted. Additionally, each admixture shall not contribute more than 5 ppm, by weight, of chloride ions to total concrete constituents.
- D. Water-Reducing Admixture: ASTM C 494, Type A.
- E. High-Range, Water-Reducing Admixture: ASTM C 494, Type F.
- F. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.
- G. Air Entraining Admixture: ASTM C260.
- H. Acceptable admixture manufacturers:
  1. Axim Concrete Technologies
  2. Euclid Chemical Co.
  3. W.R. Grace & Co.
  4. BASF Construction Chemical
  5. Sika Corporation
  6. Lafarge

**2.5 RELATED MATERIALS**

- A. Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber, or ASTM D 1752, cork or self-expanding cork.

**2.6 CURING MATERIALS**

- A. Evaporation Reducer: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) dry.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.
- E. Curing Compound: Clear, Waterborne, ASTM C 309, Type 1, Class A or B. Moisture loss shall be not more than 0.55 kg/m<sup>2</sup> when applied at 200 sq.ft./gal. Manufacturer's certification is required. Silicate based compounds prohibited.

**2.7 CONCRETE MIXES**

- A. Proportion mixtures determined by either laboratory trial mix or field test data bases, as follows:
  - 1. Proportion normal-weight concrete according to ACI 211.1 and ACI 301.
  - 2. Provide different mixtures as the season warrants, as well as each type and strength of concrete or for different placing methods.
- B. Use a qualified independent testing agency for preparing and reporting proposed Mixture Proportions for the laboratory trial mix basis.
- C. Requirements for normal-weight concrete mix are as follows:
  - 1. Road way concrete at expansion joints and full depth topping repairs
    - a. Compressive strength to reach 3500 psi in 4 hours prior to allowing vibrations of traffic in adjacent lanes.
    - b. Compressive strength to reach 6000 psi prior to allowing traffic load directly on top of concrete.
    - c. Compressive strength (28 days): 6000 psi min.
    - d. Maximum w/cm ratio: 0.40.
    - e. Air Content: 7%
  - 2. All other concrete
    - a. Compressive Strength (28 Days): 5000 psi (27.6 MPa).
    - b. Maximum w/cm ratio: 0.40
    - c. Air Content: 7%
- D. Supplementary cementitious materials: Maximum weight of fly ash included in concrete shall not exceed percentages of total weight (see footnotes for ACI 301 Part 4 Table "Requirements for Concrete Exposed to Deicing Chemicals") of cementitious materials as follows:
  - 1. Fly Ash conforming to ASTM C 618: 25 percent.
- E. Air Entrainment:



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1. Average air content shall exceed value stated above.
  2. Permissible variation for any one test result from specified average total air content: plus or minus 1.5 percent.
  3. Hardened concrete shall have an air void spacing factor of 0.0080 in. maximum. Specific surface (surface area of air voids) shall be 600 in<sup>2</sup> per cu in. of air-void volume, or greater. Concrete mixes not meeting these values as determined by ASTM C 457 may require adjustments unless accepted in writing by Project Manager. Refer to Part 1 Article "Submittals."
- F. Chloride Ion Content of Mixture:
1. Water soluble chloride ion content of concrete shall not exceed 0.06 percent by weight of cement for pre-stressed concrete and 0.15 percent for reinforced concrete. (ACI 318 Chapter 4 Table 4.4.1 "Maximum Chloride Ion Content for Corrosion Protection of Reinforcement") Test to determine chloride ion content shall conform to ASTM C 1218.
  2. Concrete chloride ion content shall be determined by Testing Agency prior to placement. Cast samples from current production of concrete mix proposed for superstructure.
  3. Concrete not meeting the requirements of paragraph "Water soluble chloride ion content of concrete..." above, shall contain appropriate amount of calcium nitrite. Concrete supplier shall provide laboratory test results showing the amount of excess chloride ion content in the concrete mixture contributed by the aggregates. For each pound of chloride ion in excess of the amount allowed, mix shall contain calcium nitrite (30 percent, plus or minus 2 percent, solids content) on one-to-one basis (one gallon of calcium nitrite for one lb of excess chloride ion). Maximum of 1.5 lb of chloride ion per cubic yard may be offset in this manner.
- G. Admixtures: Use admixtures according to manufacturer's written instructions.
1. Use water-reducing admixture or high-range water-reducing admixture (Superplasticizers), for placement, workability, finishing, and increased flowability.
  2. Consider using water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
- H. Slump (ACI 301, Part 4 header "Slump"):
1. Where field conditions require higher slump, increased slump shall be obtained by use of high range water reducers (superplasticizers) only, and Contractor shall obtain written acceptance from Project Manager who may require an adjustment to mix.
  2. All concrete containing high-range water-reducing admixture (superplasticizer) shall have a verified initial slump of 3 in. Final slump after the addition of the superplasticizer shall be 6-9 in. as required by the contractor to properly place the concrete. Before permission for plant addition of superplasticizer to be granted by Project Manager, fulfill following requirements:
    - a. Submit letter from testing laboratory which developed original mixture proportions, for each superplasticized mixture, certifying volume of mix water which will produce specified slump and water/cement ratio, taking into account aggregate moisture content.
    - b. Submit plant computer printout of mixture ingredients for each truckload of superplasticized concrete with delivery of that truckload. Mix water volume greater than that certified shall be cause for concrete rejection.
    - c. Over-retarding or crusting of flatwork surface: cause for concrete rejection.

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- d. Segregation or rapid slump loss (superplasticizer life) due to incompatibility or under-dosing: cause for concrete rejection.
- I. Project Manager's acceptance of mixture proportions shall not relieve Contractor from responsibility for any variation from requirements of Contract Documents unless Contractor has in writing called Project Manager's attention to each such variation at time of submission and Project Manager has given written approval of each such variation.
- J. Adjustment to Concrete Mixtures: Adjustments to mixture proportions may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, as accepted by Project Manager. Laboratory test data for revised mixture and strength results shall be submitted to and accepted by Project Manager before using in work.

**2.8 CONCRETE MIXING**

- A. Ready-Mixed Concrete: Comply with ASTM C 94 and ASTM C 1116.
  - 1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.
- B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94. Mix concrete materials in appropriate drum-type batch machine mixer.
  - 1. For mixer capacity of 1 cu. yd. (0.76 cu. m) or smaller, continue mixing at least one and one-half minutes, but not more than five minutes after ingredients are in mixer, before any part of batch is released.
  - 2. For mixer capacity larger than 1 cu. yd. (0.76 cu. m), increase mixing time by 15 seconds for each additional 1 cu. yd. (0.76 cu. m).
  - 3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mix type, mix time, quantity, and amount of water added. Record approximate location of final deposit in structure.

**PART 3 - EXECUTION****3.1 FORMWORK**

- A. Design, construct, erect, shore, brace, and maintain formwork according to ACI 301.

**3.2 STEEL REINFORCEMENT**

- A. Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement. See Section 020010 "Work Items", paragraph "WI 1.4 Concrete Reinforcement" for more information.

**3.3 JOINTS**

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete. Tool joints at time of finishing. Saw cut joints prohibited.
- B. Construction Joints: Locate and install so as not to impair strength or appearance of concrete, at locations indicated or as approved by Project Manager.
- C. Isolation Joints: Install joint-filler strips at junctions with slabs-on-grade and vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
  - 1. Extend joint filler full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.

**3.4 CONCRETE PLACEMENT**

- A. Comply with recommendations in ACI 304R for measuring, mixing, transporting, and placing concrete.
- B. Do not add water to concrete during delivery, at Project site, or during placement.
- C. Consolidate concrete with mechanical vibrating equipment.
- D. Check air content after any site addition of admixtures to increase slump.
- E. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation.
- F. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
  - 1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
  - 2. Maintain reinforcement in position on chairs during concrete placement.
  - 3. Screed slab surfaces with a straightedge or motor driven vibrating screed and strike off to correct elevations.
  - 4. Begin initial floating using highway bull floats or darbies to form a uniform and open-textured surface plane, free of humps or hollows, before excess moisture or bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

**3.5 FINISHING FORMED SURFACES**

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defective areas repaired and patched, and fins and other projections exceeding 1/4 inch (6 mm) in height rubbed down or chipped off.
  - 1. Apply to concrete surfaces not exposed to public view.

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- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defective areas. Remove fins and other projections exceeding limits for class of surface specified.
  - 1. Apply to concrete surfaces exposed to public view or to be covered with a coating or covering material applied directly to concrete, such as waterproofing.
- C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

**3.6 FINISHING UNFORMED SURFACES**

- A. General: Comply with ACI 302.1R for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Screed surfaces with a straightedge and strike off. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane before excess moisture or bleedwater appears on the surface.
  - 1. Do not further disturb surfaces before starting finishing operations.
- C. After excess moisture or bleed water has disappeared and concrete has stiffened sufficiently to allow operation, give slab surfaces coarse transverse scored texture by drawing broom across surface. Texture shall be as accepted by Engineer from sample panels.

**3.7 TOLERANCES**

- A. Comply with ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

**3.8 CONCRETE PROTECTION AND CURING**

- A. General: Comply with ACI 308.1. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection, and follow recommendations in ACI 305R for hot-weather protection during curing.
- B. Evaporation Reducer: Apply evaporation reducer to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Begin curing after finishing concrete, but not before free water has disappeared from concrete surface.
- D. Curing Methods: Cure formed and unformed concrete for at least seven days by moisture curing, moisture-retaining-cover curing, curing compound, or a combination of these as follows:

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1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
  - a. Water.
  - b. Continuous water-fog spray.
  - c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

**3.9 FIELD QUALITY CONTROL**

- A. Testing Agency: Contractor shall engage a qualified independent testing and inspecting agency to sample materials, perform tests, and submit test reports during concrete placement according to requirements specified in this Article. Sample concrete in accordance with ASTM C172.
  1. Compressive strength test cylinders: Obtain one composite sample for each day's pour of each concrete mix less than 25 cu. yd. (19 cu. m), plus one set for each additional 50 cu. yd. (38 cu. m) or fraction thereof. Take six cylinders for each set.
  2. Determine strength at 7 and 28 days (or as required by Contractor for high early strength concrete). Testing shall be in accordance with ASTM C 39.
  3. Cure cylinders per ASTM C 31.
- B. Temperature:
  1. Test temperature of concrete in accordance with ASTM C 1064/C 1064M and ACI 301 each time cylinders are taken or as directed by the Project Manager.
- C. Slump Test:
  1. Conduct one slump test in accordance with ASTM C 143/C 143M per truck load of ready-mixed concrete delivered to Project at truck.
  2. When high-range water-reducing admixture (superplasticizer) is used, initial slump must be verified by Testing Agency.
- D. Air Content:
  1. General Contractor: Coordinate all parties involved to produce conforming concrete.
  2. Sample freshly-mixed concrete at point of final placement in accordance with ASTM C 172 and conduct one air content test in accordance with ASTM C 231 or ASTM C 173 for each truck of ready-mix, air entrained concrete delivered to Project.

**3.10 REPAIRS**

- A. Remove and replace concrete that does not comply with requirements in this Section.

**END OF SECTION 033021**

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## SECTION 033760 - TROWEL APPLIED MORTAR

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Include, but are not limited to, the Contract Drawings, Construction Contract General Conditions and Special Conditions. For a complete list of the Contract Documents, please refer to Article I of Contract.

#### 1.2 SUMMARY

- A. This Section includes the provision of all labor, materials, supervision and incidentals necessary to prepare deteriorated or damaged concrete surfaces and install patches to overhead and vertical surfaces to restore original surface condition and integrity.
- B. Related Sections: Following Sections contain requirements that relate to this Section:
  - 1. Division 02 Section 025140 "Surface Preparation for Patching."
  - 2. Division 03 Section 033021 "Cast-in-Place Concrete Restoration."

#### 1.3 QUALITY ASSURANCE

- A. Work shall conform to requirements of ACI 301 as applicable except where more stringent requirements are shown on Drawings or specified in this Section.
- B. Testing Agency:
  - 1. Independent testing laboratory employed by Contractor and acceptable to Project Manager.
  - 2. Accredited by AASHTO under ASTM C1077. Testing laboratory shall submit documented proof of ability to perform required tests.
- C. Sampling and testing of mortar shall be performed by ACI certified Concrete Field Technicians Grade I. Certification shall be no more than three years old.
- D. Testing Agency is responsible for conducting, monitoring and reporting results of all tests required under this Section. Testing Agency has authority to reject mortar not meeting Specifications.
- E. Testing Agency shall submit following information for Field Testing of Concrete unless modified in writing by Project Manager:
  - 1. Project name and location.
  - 2. Contractor's name.

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3. Testing Agency's name, address and phone number.
4. Mortar manufacturer.
5. Date of report.
6. Testing Agency technician's name (sampling and testing).
7. Placement location within structure.
8. Weather data:
  - a. Air temperatures.
  - b. Weather.
  - c. Wind speed.
9. Date, time, and place of test.
10. Compressive test data:
  - a. Cube number.
  - b. Age of mortar when tested.
  - c. Date and time of cube test.
  - d. Compressive strength.

**1.4 REFERENCES**

- A. "Standard Specification for Structural Concrete" (ACI 301) by American Concrete Institute, herein referred to as ACI 301, is included in total as specification for this structure except as otherwise specified herein.
- B. Comply with provisions of following codes, specifications and standards except where more stringent requirements are shown on Drawings or specified herein:
  1. "Building Code Requirements for Structural Concrete" (ACI 318), American Concrete Institute, herein referred to as ACI 318.
  2. "Hot Weather Concreting" reported by ACI Committee 305.
  3. "Cold Weather Concreting" reported by ACI Committee 306.
- C. Contractor shall have following ACI publications at Project construction site at all times:
  1. "Standard Specifications for Structural Concrete (ACI 301) with Selected ACI and ASTM References," ACI Field Reference Manual, SP15.
  2. "Hot Weather Concreting" reported by ACI Committee 305.
  3. "Cold Weather Concreting" reported by ACI Committee 306.
- D. American Society for Testing and Materials (ASTM):
  1. ASTM C109, "Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or 50-mm Cube Specimens)."

**1.5 SUBMITTALS**

- A. Make submittals in accordance with requirements of Division 01 and as specified in this Section.



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- B. Contractor: At preconcrete meeting, submit procedures to protect fresh patches from severe weather conditions.
- C. Testing Agency: Promptly report all mortar test results to Project Manager and Contractor. Include following information:
  - 1. See Article "Quality Assurance," paragraph "Testing Agency shall submit..."
  - 2. Strength determined in accordance with ASTM C109.
- D. See requirements of Division 01 Section 01300, "Submittals" for limits to resubmittals.

**PART 2 - PRODUCTS****2.1 MATERIALS**

**Vertical / Overhead Repair Mortar:** Shall be prepackaged, polymer-modified or silica-fume-modified, cementitious repair mortar shall be capable of **vertical/overhead application by trowel** achieving a minimum 3,000 psi compressive strength at 7 days and 5,000 psi compressive strength at 28 days per ASTM C 109 as certified by manufacturer. Acceptable materials for this Work are:

- a. "HBA or HB2 Repair Mortars", or "Gel Patch", by BASF Building Systems, Shakopee, MN.
  - 1) Use HBA for normal weight concrete; Use HB2 for lightweight concrete.
- b. "Eucopatch", "Verticoat", "Verticoat Supreme", or "Duraltop Gel", by The Euclid Chemical Company, Cleveland, OH.
- c. "SikaRepair 223 with Latex R", "SikaRepair SHB with Latex R", or "SikaRepair SHA with Latex R", by Sika Corporation, Lyndhurst, NJ.
- d. Other types may be used only with Engineer/Architect's approval in writing prior to bidding.

**PART 3 - EXECUTION****3.1 PREPARATION**

- A. Surface Preparation: Cavity surfaces shall be clean and dry prior to commencement of patch installation. Preparation of cavity to receive new mortar shall be in accordance with Section 025140 "Surface Preparation for Patching" and manufacturer's instructions.

**3.2 INSTALLATION**

- A. Bonding Grout:
  - 1. Apply bonding grout in strict accordance with manufacturer's recommendations.

2. If bonding grout dries, cavity shall not be patched until it has been recleaned and prepared as specified in Section 025140 "Surface Preparation for Patching." Grout shall not be applied to more cavities than can be patched within 0.25 hr by available manpower.
- B. Placement: Patching materials shall be placed immediately following grout application in strict accordance with manufacturer's instructions. Properly proportioned and mixed patch material shall be placed using trowels to consolidate patch so that no voids exist within new material and continuous contact with base concrete is achieved. Supplemental wire mesh shall be required for delamination and spall repairs greater than two inches in depth. Fresh bonding grout is required between successive lifts of patching material.

### **3.3 CURING**

- A. Initial Curing: Immediately after finishing, keep patch material continually moist for at least 24 hours by misting, sprinkling, or using absorptive mat or fabric covering kept continually moist.
- B. Final Curing: Curing compounds complying with ASTM C309 may be used in accordance with recommendations of ACI 506.7, "Specification for Concrete." Provide additional curing immediately following initial curing and before patch material has dried. Use one of following materials or methods:
1. Continue method used in initial curing.
  2. Material conforming to ASTM C171.
  3. Curing compounds conforming to ASTM C309.
  4. Other moisture retaining covering as approved by Project Manager.
  5. Duration of Curing: Continue curing for first 7 days after patch placement. During initial and final curing periods maintain patch material above 50° F.
  6. Prevent rapid drying at end of curing period.
  7. Provide additional curing as required or recommended by manufacturer.

### **3.4 FIELD QUALITY CONTROL BY TESTING AGENCY**

- A. Concrete Compressive Strength:
1. Mold test cubes in accordance with ASTM C-109 as follows:
    - a. Take minimum of nine (9) cubes for each pallet of repair material or fraction thereof delivered to the job site.
    - b. Use 2 in. x 2 in. cubes.
    - c. Additional 2 cubes shall be taken and field cured under conditions of cold weather concreting, and when directed by Project Manager.
  2. Cover specimens properly, immediately after finishing. Protect molds from contact with sources of water for first 24 hours after molding.
  3. Fabricate and cure test cubes per ASTM C-109, except as follows:

- a. Do not remove specimens from molds before 24 hours.
  - b. To verify 7 and 28-day compressive strengths:
    - 1) During first 24 hours after molding, store test specimens under conditions that maintain temperature immediately adjacent to specimens in range of 60 to 80° F. and prevent loss of moisture from specimens.
    - 2) Remove test specimens from molds at end of 24 hours and air dry in laboratory until moment of test.
  - c. To verify compressive strength of test cubes required due to cold weather concreting conditions:
    - 1) Store test specimens on structure as near to point of sampling as possible and protect from elements in same manner as that given to portion of structure as specimen represents.
    - 2) Transport to test laboratory no more than 4 hours before testing. Remove molds from specimens immediately before testing.
4. Compression Test:
- a. Test 3 cubes at 7 days.
  - b. Test 3 cubes at 28 days.
  - c. Hold 3 cubes in reserve for use as Project Manager directs.
5. Unless notified by Project Manager, reserve cubes may be discarded without being tested after 56 days.

### **3.5 EVALUATION AND ACCEPTANCE OF TROWEL APPLIED MORTAR REPAIRS**

- A. Acceptance of Repairs (ACI 301):
- 1. Acceptance of completed concrete Work will be according to provisions of ACI 301.
  - 2. Patched areas shall be sounded by Project Manager and Contractor with hammer or rod after curing for 72 hours. Contractor shall repair all hollowness detected by removing and replacing patch or affected area at no extra cost to Owner.
  - 3. If shrinkage cracks appear in patch area when initial curing period is completed, patch shall be considered defective, and it shall be removed and replaced by Contractor at no extra cost.

### **END OF SECTION 033760**

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## SECTION 036300 - EPOXY INJECTION SYSTEMS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Include, but are not limited to, the Contract Drawings, Construction Contract General Conditions and Special Conditions. For a complete list of the Contract Documents, please refer to Article I of Contract.

#### 1.2 SUMMARY

- A. This Section includes the provision of all labor, materials, equipment, supervision and incidentals necessary to prepare cracks in structural concrete members and inject them with an epoxy resin system.

#### 1.3 QUALITY ASSURANCE

- A. Testing Agency will be independent testing laboratory employed by Contractor and approved by Project Manager.
- B. Testing Agency is responsible for conducting, monitoring and reporting to Project Manager results of all field tests of epoxy injection and installation required under this Section with copy of all reports to Project Manager and Contractor.
- C. Submit the following information for Field Testing of Epoxy Injection Installation unless modified in writing by Project Manager:
  - 1. Project name and location.
  - 2. Contractor's name.
  - 3. Testing Agency's name, address and phone number.
  - 4. Epoxy material supplier.
  - 5. Date of report.
  - 6. Testing Agency technician's name (sampling and testing).
  - 7. Placement location within structure.
  - 8. Epoxy material data:
    - a. Epoxy type.
    - b. Gel type.
    - c. Width of cracks injected (if applicable).
    - d. Crack conditions (dry or wet).
    - e. Injection port spacing.
    - f. Initial and (if different) constant injection pressures.
    - g. Use rate of epoxy.
  - 9. Weather data:
    - a. Air temperatures.

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- b. Weather.
  - c. Wind speed.
10. Field test data:
- a. Date, time and place of test.
  - b. Thickness of epoxy in crack or void.

**1.4 REFERENCES**

- A. "Standard Specifications for Structural Concrete," (ACI 301) by American Concrete Institute, herein referred to as ACI 301, is included in total as specification for this structure except as otherwise specified herein.
- B. Comply with provisions of following codes, specifications and standards except where more stringent requirements are shown on Drawings or specified herein:
  - 1. "Building Code Requirements for Reinforced Concrete," (ACI 318), American Concrete Institute, herein referred to as ACI 318.
  - 2. "Causes, Evaluation, and Repair of Cracks in Concrete Structures" (ACI 224.112), American Concrete Institute.
  - 3. "State-of-the-Art Report on Parking Structures" (ACI 326), American Concrete Institute.
  - 4. "Use of Epoxy Compounds with Concrete" (ACI 503), American Concrete Institute.
  - 5. "Standard Specification for Bonding Hardened Concrete, Steel, Wood, Brick, and Other Materials to Hardened Concrete with a Multi-Component Epoxy Adhesive" (ACI 503.1), American Concrete Institute.
  - 6. "Guide for Repair of Concrete Bridge Superstructures" Reported by ACI Committee 546 (ACI 546.1).
- C. Contractor shall have following ACI publications at Project construction site at all times:
  - 1. "Use of Epoxy Compounds with Concrete" (ACI 503), American Concrete Institute.
  - 2. "Standard Specification for Bonding Hardened Concrete, Steel, Wood, Brick, and Other Materials to Hardened Concrete with a Multi-Component Epoxy Adhesive" (ACI 503.1), American Concrete Institute.

**1.5 SUBMITTALS**

- A. Make submittals in accordance with requirements of Division 01 and as specified in this Section.
- B. Contractor: Submit manufacturer's product data sheets, technical sheets, recommended application procedures and information on epoxy injection equipment.
- C. Testing Agency: Promptly report all test results to Project Manager and Contractor. Include following information:
  - 1. See Article "Quality Assurance," paragraph "Submit the following information for Field Testing..."
  - 2. Visual examination of epoxy resin penetration.
- D. See requirements of Division 01 Section 01300, "Submittals" for limits to resubmittals.

## 1.6 WARRANTY

- A. System manufacturer and Contractor shall furnish Owner written single source performance guarantee that epoxy resin injection system will be free of defects related to design, workmanship or material deficiency for 3-year period from date of acceptance of Work required under this Section against leakage or bond failure:
1. Any adhesive or cohesive failure.
- B. Any repair under this guarantee shall be done at no cost to Owner. Guarantee shall be provided by Contractor and manufacturer of system.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Subject to compliance with requirements, provide products from one of following manufacturers (listed in alphabetical order), only where specifically named in product categories:
1. "ChemCo Systems, Inc.", Redwood City, CA (ChemCo)
  2. "The Euclid Chemical Company", Cleveland, OH (Euclid).
  3. "Sika Chemical Corporation", Lyndhurst, NJ (Sika).

### 2.2 MATERIALS AND EQUIPMENT

- A. Injection epoxy resin shall be:
1. "Eucopoxy Injection Resin" or "Duralcrete LV" (Euclid).
  2. "Kemko 038 Regular IR" or "Kemko 068 LoVis IR, (ChemCo)
  3. "Sikadur 35 Hi-Mod LV" or "Sikadur 52" (Sika)
- B. Epoxy gel paste shall be provided by manufacturer of the approved injection epoxy resin.
- C. Substitutions: **None** for this project. Contact Project Manager for consideration for future projects.
- D. Equipment:
1. Epoxy injection unit shall be portable and equipped with positive displacement-type pumps with interlock to provide positive ration control of epoxy injection resin components. Pumps shall be air or electric powered and shall provide in-line mixing and metering system and shall be equipped with drain-back plugs.
  2. Equipment used to inject epoxy shall be capable of following:
    - a. Automatic proportioning of materials within mix ratio tolerances set by epoxy resin manufacturer.
    - b. Delivery of components, resin and hardeners, from separate reservoirs to mixing type discharge head.
    - c. Complete and uniform mixing of components at discharge head.
    - d. Injection of resin system at constant pressures not to exceed 150 psi.

**PART 3 - EXECUTION****3.1 PREPARATION**

## A. Crack Identification:

1. All cracks 0.03 in. wide or greater that are designated by Project Manager, and not coincident with principal delamination, shall be injected. Cracks that occur coincident with principal delaminations shall not be injected.
2. Cracks requiring repair shall be located by Contractor at time of construction and marked with chalk.

## B. Crack Preparation for Injection:

1. Surface of concrete adjacent to crack must be free of all laitance, efflorescence, dirt or foreign particles.
2. Cracks may be damp or dry as per injection material manufacturer's recommended installation procedures.
3. All cracks shall be properly sealed along their exposed length with an approved epoxy gel.
4. Epoxy injection ports shall be uniformly spaced along crack and shall be installed as recommended by system manufacturer. If concrete member being injected is exposed on both sides, provide injection ports on opposite sides at staggered intervals.
5. Apply epoxy gel around injection port to provide an adequate seal to prevent escape of injection resin from perimeter of port while under pressure.
6. Apply epoxy gel for sealing in manner that will result in minimal defacing or disorganization of concrete substrate.

**3.2 INSTALLATION**

## A. Epoxy Injection:

1. Dispense epoxy injection resin under constant pressure in accordance with manufacturer's recommended procedures or as required to achieve maximum filling and penetration of crack without inclusion of air voids in epoxy resin material.
2. Injection shall begin at lowest port and progress incrementally higher.
3. Appearance of epoxy resin at next higher port shall be considered evidence of successful crack filling.
4. If penetration of epoxy resin into cracks is not possible, notify Project Manager prior to discontinuing injection procedures. If alternate injection procedures are possible, submit procedure in writing to Project Manager for review.
5. Contractor shall adhere to all limitations and cautions for epoxy resin injection material as per manufacturer's current printed literature.

## B. Cleaning:

1. Epoxy gel and injection ports shall be removed from concrete substrate in manner that does not damage concrete substrate.
2. Contractor shall leave work area in clean condition when injection work is completed. Any epoxy resin materials shall be cleaned off adjacent areas.

**3.3 FIELD QUALITY CONTROL BY TESTING AGENCY**

## A. Core Testing:

1. Testing Agency shall obtain 3- 2 in. minimum diameter core samples in first 100 ft of repaired cracks and 1 core for each 100 ft thereafter. Cores shall be taken after injection resin has cured for period of 7 days. Core sample shall be for full crack depth. Core locations and sizes shall be submitted to Project Manager for review prior to taking core samples. Care should be taken not to damage or cut existing reinforcement (ESPECIALLY POST-TENSIONING TENDONS).
2. Core samples shall be visually examined to determine degree of epoxy penetration. Minimum of 90% of crack shall be full of epoxy adhesive.

## B. Evaluation and Acceptance of Epoxy Injection:

1. Results of visual examination will be reviewed by Project Manager for compliance with Article "Field Quality Control by Testing Agency," paragraph "Core Testing."
2. If results of initial cores fail by lack of penetration, work shall not proceed further until area represented by cores has been re-injected and re-tested for acceptance.
3. After cracks have been re-injected, additional cores shall be taken as directed by Project Manager. Cores shall be tested for compliance with Article "Field Quality Control by Testing Agency," paragraph "Core Testing" by Contractor's Testing Agency at Contractor's expense.
4. Core holes shall be filled with non-shrink grout material. Grout shall be applied with hard trowel, and be thoroughly rodded and tamped in place. Finish, texture and color to match existing surface. Materials and procedures for filling testing core holes shall be submitted to Project Manager for review prior to starting work.

## C. Acceptance of Structure:

1. Acceptance of completed concrete injection work will be according to requirements of Article "Field Quality Control by Testing Agency," paragraph "Core Testing."
2. Grouted core holes shall be sounded by Project Manager and Contractor with hammer or rod after curing for 48 hours.

**END OF SECTION 036300**

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## SECTION 036400 – CHEMICAL INJECTION GROUTING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Include, but are not limited to, the Contract Drawings, Construction Contract General Conditions and Special Conditions. For a complete list of the Contract Documents, please refer to Article I of Contract.

#### 1.2 SUMMARY

- A. This Section includes the provision of all labor, materials, equipment, supervision and incidentals necessary to prepare cracks, concrete voids, debonded curbs, etc as indicated on the drawings and inject them with a chemical grout resin system.

#### 1.3 QUALITY ASSURANCE

- A. Testing Agency will be independent testing laboratory employed by Contractor and approved by Project Manager.
- B. Testing Agency is responsible for conducting, monitoring and reporting to Project Manager results of all field tests of chemical grout resin injection and installation required under this Section with copy of all reports to Project Manager and Contractor.
- C. Submit following information for Field Testing of Chemical Grout Injection Installation unless modified in writing by Project Manager:
  - 1. Project name and location.
  - 2. Contractor's name.
  - 3. Testing Agency's name, address and phone number.
  - 4. Chemical grout material supplier.
  - 5. Date of report.
  - 6. Testing Agency technician's name (sampling and testing).
  - 7. Placement location within structure.
  - 8. Chemical grout material data:
    - a. Resin type.
    - b. Port type.
    - c. Width of cracks injected (if applicable).
    - d. Crack conditions (dry or wet).
    - e. Injection port spacing.
    - f. Initial and (if different) constant injection pressures.
    - g. Use rate of chemical grout.
    - h. Crack and port sealing patching material and application methods.
  - 9. Weather data:

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- a. Air temperatures.
  - b. Weather.
  - c. Wind speed.
10. Field test data:
- a. Date, time and place of test.
  - b. Thickness of resin in crack or void.

**1.4 REFERENCES**

- A. "Standard Specifications for Structural Concrete," (ACI 301) by American Concrete Institute, herein referred to as ACI 301, is included in total as specification for this structure except as otherwise specified herein.
- B. Comply with provisions of following codes, specifications and standards except where more stringent requirements are shown on Drawings or specified herein:
  - 1. "Building Code Requirements for Reinforced Concrete," (ACI 318), American Concrete Institute, herein referred to as ACI 318.

**1.5 SUBMITTALS**

- A. Make submittals in accordance with requirements of Construction Contract General Conditions, Special Conditions and as specified in this Section.
- B. Contractor: Submit manufacturer's product data sheets, technical sheets, recommended application procedures and information on chemical grout injection equipment.
- C. Testing Agency: Promptly report all test results to Project Manager and Contractor. Include following information:
  - 1. See Article "Quality Assurance," paragraph "Submit the following information for Field Testing...."
  - 2. Visual examination of grout resin penetration.

**1.6 WARRANTY**

- A. System manufacturer and Contractor shall furnish Owner written single source performance guarantee that chemical grout injection system will be free of defects related to design, workmanship or material deficiency for 3-year period from date of acceptance of Work required under this Section against leakage or bond failure of patching materials.
- B. Any repair under this guarantee shall be done at no cost to Owner. Guarantee shall be provided by Contractor and manufacturer of system.

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**PART 2 - PRODUCTS**

## 2.1 MATERIALS AND EQUIPMENT

- A. Hydrophilic Chemical grout injection system shall be one of following:
1. "Hydro Active Sealfoam NF" as manufactured by De Neef Construction Chemicals (U.S.) Inc., P.O. Box 1219, Waller, Texas 77484.
  2. "Prime Flex 900 XLV" as manufactured by Prime Resins, 2291 Plunkett Road, Conyers, GA 80013
- B. Substitutions: **None** for this project. Contact Project Manager for consideration for future projects.
- C. Equipment:
1. Equipment used to inject grout shall be capable of following:
    - a. High pressure range of 2000 to 2500 psi by positive displacement.
    - b. Injection of grout system at constant pressures as required by the manufacturer.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Crack Preparation for Injection:
1. Surface of concrete adjacent to crack/void must be free of all laitance, efflorescence, dirt or foreign particles.
  2. Cracks/Voids are to be prepared according to Drawings and Work Item Details.
  3. Cracks/Void may be damp or dry as per injection material manufacturer's recommended installation procedures.
  4. Drill hole at 90 degree angle and drill ½ inch in depth past void area or crack.
  5. Drill holes along the perimeter of the curb area with a 24in. maximum spacing.
  6. Insert grout port into the drilled hole and tighten according to manufactures recommendations.
  7. Flush crack with water prior to chemical grouting.

### 3.2 INSTALLATION

- A. Chemical Grout Injection:
1. Flush crack/void with clean water, where this will indicate how the crack/void will behave during the grout injection and will prime the crack for the chemical reaction to occur.
  2. Begin the injection on the lowest port. Inject material until it appears at the next adjacent port. Disconnect and start injection on the next port. Continue to inject up the crack moving from port to port. After injection of a few ports, come back to the first port and reinject all the ports for a second time. Continue the procedure until the crack/void is completely filled and no water is leaking from crack.
  3. After determining the crack/void is not leaking, clean the surface flush; remove the ports after the resin is set and patch injection holes according to repair Details.

4. Contractor shall adhere to all limitations and cautions for chemical grout injection material per manufacturer's current printed literature.
5. For injecting ceiling cracks, follow manufacture installation guidelines and recommendations.
6. Contractor shall adhere to all Federal, State and Local regulations for the use and disposal of all products.

B. Cleaning:

1. Contractor shall leave work area in clean condition when injection work is completed. Any chemical grout resin materials shall be cleaned off adjacent areas. Any painted surfaces are to be returned to original condition.

### 3.3 FIELD QUALITY CONTROL BY TESTING AGENCY

A. Evaluation and Acceptance of Chemical Grout Injection:

1. Results by visual examination will be reviewed by Project Manager.
2. If the leakage continues in part of the crack/void area, it shall be re-injected with no additional quantity as a pay item.
3. Port holes shall be filled with non-shrink grout material. Grout shall be applied with hard trowel, and be thoroughly rodded and tamped in place. Finish, texture and color to match existing surface.

### END OF SECTION 036400

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## **SECTION 059990 - WELDING**

### **PART 1 -GENERAL**

#### **1.01 SUMMARY**

- A. Welding is that work defined in American Welding Society (AWS) "Standard Welding Terms and Definitions - AWS A2.4" and as otherwise shown on drawings.
  - 1. All welding on this project shall comply with requirement of specification, Section 059990 "Welding", and other documents such as but not limited to drawings. If there is a conflict between Project Drawings, codes, and specifications, the more stringent shall apply.
- B. Extent of welding work is shown on drawings, including schedules, notes and details to show size and location of welds. Welding Symbols shall be in accordance with AWS/A2.4-Standard Symbols for Welding, Brazing, and Nondestructive Examination.
- C. Nothing stated in this Section shall be interpreted as diminishing or eliminating requirements stated in other Sections.

#### **1.02 RELATED DOCUMENTS**

- A. Include, but are not limited to, the Contract Drawings, Construction Contract General Conditions and Special Conditions. For a complete list of the Contract Documents, please refer to Article I of Contract.
- B. IEEE-1992. Only welding machines that have been tested and comply with harmonic distortion requirements of IEEE-1992 shall be allowed to operate off of DIA electrical power system.

#### **1.03 RELATED SECTIONS**

- A. This section "Section 059990 Welding" will apply to all welding performed under all other sections of this specification.

#### **1.04 REFERENCE STANDARDS**

- A. Welding shall comply with the requirements of the reference standards noted herein, except where more stringent requirements are listed herein or otherwise required by the Contract Documents.
  - 1. AISC - American Institute of Steel Construction
  - 2. AWS - American Welding Society
  - 3. API - American Petroleum Institute
  - 4. AWWA - American Water Works Association
  - 5. ASME - American Society of Mechanical Engineers.

6. ASTM - American Society for Testing and Materials
7. ASNT - American Society for Nondestructive Testing

## 1.05 SUBMITTALS

- A. Product Data: Submit producers or manufacturer's specifications and installation instructions for all products, including, but not limited to those listed below. Include laboratory test reports and other data to show compliance with specifications (including specified standards).
  1. Welding Electrodes: Submit manufactures specifications, to include recommended parameters and technique, for each electrode to be used on this project.
- B. Submittal Requirements for Steel Studs
  1. Stud manufacturer's certification that the studs, as delivered, conform to the applicable requirements of AWS D1.1-2000, sections 7.2 and & 7.3.
  2. Certified copies of the stud manufacturer's test reports covering the last completed set of in-plant quality control mechanical tests, required by AWS D1.1-2000, 7.3 for each diameter delivered. The quality control test shall have been made within the six month period before delivery of the studs.
  3. Certified material test reports (CMTR) from the steel supplier indicating diameter, chemical properties, and grade on each heat number delivered.
  4. In the absence of Quality Control tests the provisions of AWS D1.1-2000, 7.3.4 and 7.3.5 shall apply with the exception that DIA Project Manager or his representative will replace engineer in the process. All costs shall be at contractor's expense.
- C. Submit shop drawings as specified under Section 01300 for all work specified herein, including complete details and schedules for fabrication and assembly of members, procedures and diagrams. Shop drawings shall indicate how each and every component shall be welded. If another company manufactures a component to be welded to another part(s) or piece(s) to form a larger assembly, then the shop drawings shall include that manufacturer's recommended welding procedures for that component. Design construction drawings shall not be re-used as bases for submitted shop drawings. Shop drawings, which use reproductions of design plans or details, will not be reviewed. Drawings shall be submitted in complete units. Do not submit partial sets.
- D. Shop drawings shall clearly indicate profiles, sizes and locations of structural members, connections, attachments, anchorage's, framed openings, size and type of fasteners, and clearances. Indicate welded connections using standard AWS welding symbols, per AWS A2.4. Clearly indicate net weld lengths and sizes, root openings, bevel angles and other information required to satisfactorily complete welding operations.
- E. Contractor shall submit fully dimensioned Isometric drawings (spool drawings) for all welded piping work. Drawings shall indicate all weld types, sizes and materials to be used. The spool drawing size shall match the full size contract documents of either 24x36 or 34x44. Spool drawings shall be submitted in either the latest version of AutoCAD (dwg) or the latest version of Adobe Acrobat (pdf). Adobe Acrobat files shall not contain security. Other file formats will not be accepted.
- F. Calculations required in other Sections shall show all pertinent members and pieces.

Calculations shall be submitted prior to, or with, relevant shop drawing submittals. It is contractor's responsibility to insure that field construction uses connection design as submitted and reviewed.

- G. Test Reports: Submit copies of all test reports conducted on shop and field welded connections. Include data on type(s) of tests conducted and test results. Reports must be sequentially numbered and submitted to the DIA Project Manager within 48 hours of completion.
- H. Individual Welder Qualifications: Submit Welding Performance Qualification Records (WPQR) for all welders, shop and field, prior to any welding per Specification Paragraph 05999 1.06 B.
- I. Procedures: Submit Welding Procedure Specifications for all shop and field welding prior to any welding per Specification Paragraph 059990 1.06 B

## 1.06 QUALITY REQUIREMENTS

- A. Codes and Standards: Comply with provisions of following, as applicable
  - 1. AISC American Institute of Steel Construction
    - a. AISC "Code of Standard Practice for Steel Buildings and Bridges", 1986.
    - b. AISC "Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings", including "Commentary" and Supplements thereto as issued.
  - 2. American Welding Society (AWS) D1.1 "Structural Welding Code Steel" and all other applicable A.W.S codes (latest editions).
  - 3. ASTM A 6 "General Requirements for Delivery of Rolled Steel Plates, Shapes, Sheet Piling and Bars for Structural Use".
  - 4. All welding shall be performed in accordance with the latest addition of applicable AWS, API, ASME code and ASTM Standards.
- B. Qualifications for Welding Work
  - 1. All Welders shall have been qualified through welding tests in accordance with applicable AWS code per Specification paragraph 059990 1.04 A within one year prior to welding taking place. Evidence of qualification shall be through Welding Performance Qualification Records (WPQR).
  - 2. All welder qualifications test shall be or shall have been administered and witnessed by an Independent Testing Agency (ITA), AWS Certified Welding Inspector, (CWI).
  - 3. If recertification of welders is required, delay costs and retesting costs shall be borne by the Contractor.
  - 4. Welding that is to take place at each and every type of joint shall be per approved AWS procedure for that type of joint. Evidence of intended procedure shall be through written Welding Procedure Specifications.
  - 5. Any welding done without submission to and approval by the DIA Project Manager of Welding Performance Qualification Records of the individual welder(s) doing the welding and Procedure Specifications for the actual welding shall be considered defective and subject to the provisions of Title 17 of the General Conditions.

6. All WPS and WPQR qualification testing shall be in accordance with this specification and the applicable welding code requirements.
- C. The Contractor shall periodically review each welders work quality and take any steps required to insure high quality work. This is in addition to Quality Control requirements.
- D. Fabricator Qualifications: Minimum of three years experience specializing in fabrication for similar projects.
- E. Design of Members and Connections: Details shown are typical; similar details apply to similar conditions, unless otherwise indicated. Verify dimensions at site whenever possible without causing delay in the work.
  1. Promptly notify DIA Project Manager whenever design of members and connections for any portion of structure are not clearly indicated.
- F. Welding and materials shall be inspected and tested by an Independent Testing Agency furnished and paid for by the Contractor. The Independent Testing Agency will have authority to reject weldments and materials. Such rejection may be based on visual inspection where, in the Inspector's opinion, the weldment or material would not pass more detailed investigation. Reference Specification Section 059990 4.01 for inspection and testing requirements. DIA's Quality Assurance Inspector(s), per the provisions of General Conditions Title 17, will also inspect welding and materials. Inspections by either the Independent Testing Agency or DIA's Quality Assurance Inspector may take place in the mill, shop and field.
  1. Promptly remove and replace materials or fabricated components that do not comply with requirements as set forth in the Contract Documents.

## **PART 2 - PRODUCTS**

### **2.01 MATERIALS**

- A. Electrodes for Welding: Comply with AWS Code. Use E70 grade minimum unless otherwise approved. Store all electrodes and welding materials inside and protect from moisture, corrosion, and any other damage. Damaged electrodes shall not be used.

### **2.02 FABRICATION**

- A. Shop Fabrication and Assembly: Fabricate and assemble components in shop to greatest extent possible.
  1. Properly mark and match-mark materials for field assembly. Fabricate for delivery sequence which will expedite erection and minimize field handling of materials.
  2. Where finishing is required, complete assembly, including welding of units, before start of finishing operations. Provide finish surfaces of members exposed in final structure free of markings, burrs, and other defects.
- B. Holes for Other Work: Provide holes required for securing other work to components, and for passage of other work through components, as shown on final shop drawings.
  1. Provide threaded nuts welded to framing, and other specialty items as indicated to



receive other work.

2. Cut, drill, or punch holes perpendicular to metal surfaces. The DIA Project Manager shall approve any enlarging of holes by flame cutting
- C. Contractor will notify DIA Project Manager or his representative at least 48 hours prior to any commencing fabrication. Notification to include starting date and duration of work.

### **2.03 SHOP CLEANING AND PAINTING**

- A. Components to be painted are as shown on the drawings.
1. Do not paint surfaces, which are to be welded.
  2. Do not paint over welded joints until after Independent Testing Agency and DIA Quality Assurance Inspector have approved them.

## **PART 3 - EXECUTION**

### **3.01 ERECTION**

- A. Do not enlarge misaligned or undersized holes in members by burning or by use of drift pins, except in secondary bracing members. Ream holes that must be enlarged to admit bolts.
- B. Gas Cutting: Do not use gas cutting torches in field for correcting fabrication errors in primary structural framing. Cutting will be permitted only on secondary members, which are not under stress, as acceptable to DIA Project Manager. Finish gas-cut sections equal to a sheared appearance when permitted.
- C. Touch-Up Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint. Once Independent Testing Agency and DIA Quality Assurance Inspector have approved welds, apply paint to exposed areas using same material as used for shop painting.
- D. No welding machines are to be operated off of DIA power until such machines have been tested for harmonic distortion per IEEE-1992 and approved by DIA Project Manager.
- E. Contractor will notify DIA Project Manager or his representative at least 48 hours prior to any inspections to be performed by ITA.

## **PART 4 - TESTING AND INSPECTION**

### **4.01 INDEPENDENT TESTING AGENCY (ITA)**

- A. See Division 1 for Independent Testing Agency requirements.
- B. The General Contractor shall provide the ITA for all subcontractors. Subcontractors shall not contract with a separate ITA.

- C. Contractor will engage an Independent Testing Agency to inspect welded connections and to perform tests and prepare test reports. The Contractor's Quality Control Inspector will coordinate the inspections and tests performed by the testing lab inspectors and testing personnel.
1. The Contractor's Independent Testing Agency and DIA Project Manager's staff shall conduct and interpret tests and state in each report whether test specimens comply with requirements, and specifically state any deviations therefrom. All reports shall be delivered to the Project Manager. Results not complying with requirements are to be brought to the Project Manager's attention within 24 hours of discovery. All reports shall be sequentially numbered.
  2. Provide access for Independent Testing Agency to places where work is being fabricated or produced so that required inspection and testing can be accomplished.  
The Independent Testing Agency shall inspect work at the plant before shipment; however, DIA Project Manager reserves right, at any time before final acceptance, to reject material not complying with specified requirements.
    - a. Inspections and tests conducted by the ITA or DIA shall not in any way relieve the Contractor of his responsibility and obligation to meet all specifications and referenced standards. Employment of the ITA does not relieve the Contractor of providing the required Quality Control Program.
  3. Welding Inspection Personnel Qualifications: All visual welding inspections shall be performed by AWS Certified Welding Inspectors CWI, qualified in accordance with AWS QC1. Inspectors qualified in accordance with the most current edition of the American Society for Nondestructive Testing Recommended Practice No. SNT-TC 1A, shall perform all non-destructive inspections other than visual inspections
  4. Independent Testing Agency Inspectors working for the Contractor shall identify with a distinguishing mark all parts and joints they have inspected and accepted. Marks to be visible from at least 50 feet. DIA Project Manager and the Quality Control Inspectors shall mutually agree upon identifying marks.
  5. Independent Testing Agency welding inspector shall be on job site however much time it takes to guaranty that all requirements of Project Specifications and codes are being met and provide written reports showing specific requirements have been met. Shop inspections by ITA welding inspector shall be performed in such a manor as to guaranty that all provisions of Project Specifications and codes are being met and provide written reports showing specific requirements have been met.
- D. The Contractor shall furnish such facilities and provide such assistance as may be required for carrying out the inspection prescribed herein. He shall notify the Independent Testing Agency and the DIA Project Manager at least two weeks in advance of the start of any qualification testing for welding.
- E. The Testing Agency's Inspector will perform his duties in such a way that neither fabrication nor erection is unnecessarily delayed or impeded. The Testing Agency shall notify the DIA Project Manager of any scheduled inspections at least 48 hours prior to such time. The Project Manager shall also be notified as soon as possible prior to any unscheduled inspections. In no case will the inspector recommend or prescribe the method of repair of a defect.
- F. Inspection of welding will be such as to assure that all requirements of Project Specifications AWS D1.1, and other applicable welding codes are being complied with. Reports shall

show the following items as being in conformance, but not be limited to just the items shown:

1. Verify that electrodes used for welding conform to the requirements Manufacturer, AWS, and other applicable Welding Codes and Standards.
  2. Verify that the approved Welding Procedure Specifications and the approved welding sequence are followed without deviation.
  3. Verify that only welding operators and welders who have been properly qualified will perform the welding. The inspection agency will witness such qualification testing of welding operations and welders, as may be required. Reference Specification Section 05999 1.06 B for Welder Qualification and Welding Procedure requirements.
  4. Verify that the fit up, joint preparation, size, contour, extent of reinforcement, and length and location of welds conform to specified requirements such as but not limited to applicable welding codes, Welding Procedure Specifications, and drawings.
  5. Review Mill Test Reports of material for compliance with Project Specifications, all applicable Codes, and Drawings.
  6. ITA inspection reports shall list all inspected, nonconforming, repaired, and accepted welds.
- G. DIA Project Manager shall be informed at least 48 hours prior to shop and field welding so random inspections can be performed as stipulated in these specifications and General Conditions, TITLE 17.
- H. All welders shall mark their welds with identifying marks. Contractor shall furnish DIA Project Manager with list of welders and their marks. List shall be updated each time a welder is added or subtracted.

#### 4.02 STRUCTURAL STEEL

- A. The Independent Testing Agency will test shop and field welds per ASTM E 543 and applicable welding code requirements as follows:
1. All welds: 100% visual.
  2. Delamination and non-metallic inclusion tests of base metal:
    - a. Plates and portions of rolled shapes three inches or greater in thickness shall be 100% ultrasonically tested in a zone extending six inches in all directions from any full penetration groove weld which transmits stress through the thickness of the material, or any weld which, because of restraint and/or weld shrinkage will, in the opinion of the inspector, cause significant through-thickness (Z-direction) stress in the material. Such tests shall be made after completion of welding. Acceptance Criteria for such tests shall be in accordance with ASTM A435.
  3. All full penetration or partial penetration groove welds require 100% ultrasonic testing:
  4. All fabricated trusses including all fabricated trusses acting, as girders shall be 100% magnetic particle tested.
  5. Studs on all embed assemblies: 100% of studs tested by hammer method and visual inspection.
  6. Wall and roof deck connections

- a. 10% Magnetic Particle
  7. All other welded connections: 10% Magnetic Particle.
  8. Additional Testing shall be performed by the Independent Testing Agency as noted in paragraph 4.02, B below.
- B. Additional Field Weld Testing
1. In addition, if defective welds are discovered, the remaining un-inspected welds shall receive such ultrasonic or magnetic particle inspection as may be required by the DIA Project Manager. If more than 10 percent of a welder's welds fail or when a CWI (Certified Welding Inspector) feels that the quality of the qualified welder's work appears to be below the requirements of the applicable AWS Code, he/she shall be removed from the job and retested to demonstrate compliance with AWS D1.1 (Latest Edition) or other applicable AWS codes and all other applicable AWS codes.
  2. Additional testing shall be required if more than 10% of the Magnetic Particle tested welds are rejected. Then an additional 10% will be tested using either Magnetic Particle or Dye Penetrant Testing. This 10% additional testing shall be repeated until rejection rate drops below one in 10.
  3. When ultrasonic indications arising from the weld root can be interpreted as either a weld defect or the backing strip, the backing strip shall be removed at the expense of the contractor, and if no root defect is indicated on this retest, and no significant amount of the base and weld metal have been removed, the joint needs no further repair or welding. If a defect is still indicated, it shall be repaired.
  4. The welding inspector will have the authority to reject weldments. Such rejection may be based on visual inspection where in his opinion the weldment would not pass a more detailed investigation.
  5. Reports by the Independent Testing Agency inspector will contain, as a minimum, an adequate description of each weld tested, the identifying mark of the welder responsible for the weld, a critique of any defects noted by visual inspection or testing, and a statement regarding the acceptability of the weld tested, as judged by current A.W.S. standards. A copy of all tests results, including ultrasonic and x-ray, shall be provided to the DIA Project Manager within 48 hours of the test occurrence. This requirement includes all failed tests. Any test that shows work not in conformance with the contract requirement shall be retaken after the non-conformity is corrected. The retest shall refer to the failed test. Radiographic testing may be substituted for ultrasonic.
- C. Stud Connectors
1. Stud connectors - the testing agency will inspect headed stud connectors as follows:
    - a. All studs shall be acoustically inspected. Studs, which do not ring when struck with a hammer, shall be bent 15 degrees. If no fracture occurs, stud is considered acceptable and left bent.
    - b. In addition to the above, not less than one of each 50 studs shall be tested by bending 15 degrees. If no fracture occurs, stud is considered acceptable and left bent.
    - c. If at any time the number of rejectable studs on any level of structural steel framing exceeds 3% additional testing in accordance with paragraph above shall be performed on one of each 25 studs at this level and this increased frequency of testing shall be continued on all succeeding levels until the number of

rejectable studs at a level is 3% or less. All cost of additional testing required by this paragraph shall be borne by the Contractor.

- d. 100% visual inspection to be performed in accordance with AWS D1.1 acceptance criteria.
- D. Correct deficiencies in structural steel work, which inspections and laboratory test reports have indicated to be not in compliance with requirements. Perform additional tests, at Contractor's expense, as may be necessary to reconfirm any non-compliance of original work, and as may be necessary to show compliance of corrected work.

#### 4.03 METAL DECKING

- A. Welding shall be performed in accordance with AWS D1.3 and this specification.
- B. 100 % visual inspection of all welds, per AWS D1.3 Structural Welding Code Sheet Steel.
  1. Requires the removal of all slag from welds.
- C. 10% Magnetic Particle testing of all welds.
  1. Additional testing shall be required if more than 10% of the Magnetic Particle tested welds are rejected. Then an additional 10% will be tested using either Magnetic Particle or Dye Penetrant Testing. This 10% additional testing shall be repeated until rejection rate drops below one in 10.
- D. All weld areas shall be repaired after inspection.

#### 4.04 METAL FABRICATIONS

- A. Welding shall be performed in accordance with applicable AWS welding code and these specifications.
- B. 100% visual inspection of all welds.
- C. 10% Magnetic Particle testing of all welds.
  1. Additional testing shall be required if more than 10% of the Magnetic Particle tested welds are rejected. Then an additional 10% will be tested using either Magnetic Particle or Dye Penetrant Testing. This 10% additional testing shall be repeated until rejection rate drops below one in 10.
- D. Applicable sections of "4.02 Structural Steel" shall be met also.

#### 4.05 CONCRETE REINFORCING BARS

- A. Welding shall be performed in accordance with this specification, AWS D1.4, and other applicable AWS Codes and Standards.
- B. 100 % visual inspection of all welds, Per AWS D1.4 Structural Welding Code Reinforcing Steel, or other AWS Codes as applicable.

- C. 10% Magnetic Particle testing of all welds.
  - 1. Additional testing shall be required if more than 10% of the Magnetic Particle tested welds are rejected. Then an additional 10% will be tested using either Magnetic Particle or Dye Penetrant Testing. This 10% additional testing shall be repeated until rejection rate drops below one in 10.

#### 4.06 PRECAST CONCRETE

- A. In addition to the requirements listed below, the requirements of 4.02 Structural Steel and 4.05 Concrete Reinforcing Bars shall apply to this section also.
- B. AISC Manual of Steel Construction, Chapter J, Section J2 shall be complied with.
  - 1. If welds with larger effective throat thickness than shown in Table J2.2 are to be used, random testing will have to be performed on shop and field welds to insure that effective throats sizes are being met.
    - a. Three percent of all such welds shop and field will have to be tested by removing, cross sectioning, and Macroetch tested as called out in AWS D1.4-98, Section 6.2.5.2.
    - b. Welds to be tested will be randomly picked by DIA Project Manager.
- C. Weld plates shall NOT be bent by hammering or heating to close up gaps in connections between uneven embeds.
  - 1. Filler plates shall be used in accordance with AWS D1.1.
  - 2. Designer of Record shall review all connections requiring filler plates 1/4 and thicker for compliance with design load requirements.
  - 3. Minimal hammering and bending will be allowed on plate and connection designated as "For Erection Only". Drawings shall clearly designate which welds are for erection only. Drawings shall clearly state that welds indicated as "for erection only", have no value after structure is completed.
    - a. An assortment of prebent plates shall be furnished by Precast supplier to minimize the amount of beating on connection plates. Plates shall be bent in 1/2-inch increments and no plates shall be bent any more than 1/2 inch after one side is welded in place.
    - b. All welds, erection or permanent, shall be applied and inspected per applicable AWS code. The only exception will be to allow the connection plates for the "for erection only" welds to be bent a maximum of 1/2 inch.
- D. No welding is allowed unless specifically shown on drawings.
  - 1. All welds shown on drawings are structural and shall meet all requirements of Project Specifications and welding codes.

#### 4.07 SHEET STEEL

- A. Welding shall be in accordance with AWS D1.3 Structural Welding Code- Sheet Steel.
- B. Inspection

1. 100 % visual in accordance with acceptance criteria of AWS D1.3.
2. 10% Magnetic Particle testing of all welds.
3. Additional testing shall be required if more than 10% of the Magnetic Particle tested welds are rejected. Then an additional 10% will be tested using either Magnetic Particle or Dye Penetrant Testing. This 10% additional testing shall be repeated until rejection rate drops below one in 10.

#### **4.08 DIVISION 15 BASIC MECHANICAL MATERIALS AND METHODS**

- A. All welding in Division 15 Mechanical shall comply with the applicable AWS, ASME, AWWA, and API codes, latest editions.
- B. All shop and field welds will be inspected per these specifications and applicable code for work being performed.
- C. All welds shall be 100% visually inspected by ITA supplied by Contractor. Additional testing shall be as required by other parts of 05999, applicable codes, DIA Project Manager and Designer of Record.

### **PART 5 - MEASUREMENT**

#### **5.01 METHOD OF MEASUREMENT**

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

### **PART 6 - PAYMENT**

#### **6.01 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 059990**

**SECTION 071800 – TRAFFIC COATINGS****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Include, but are not limited to, the Contract Drawings, Construction Contract General Conditions and Special Conditions. For a complete list of the Contract Documents, please refer to Article I of Contract.

**1.2 SUMMARY**

- A. A single installer shall be responsible for providing complete water proofing system including all products specified in the following Sections:
1. Division 07 Section 071800 "Traffic Coatings"
  2. Division 07 Section 071900 "Water Repellents"
  3. Division 07 Section 079233 "Joint Sealants"
  4. Division 07 Section 079500 "Expansion Joint Assemblies"
- B. This Section includes traffic topping: Fluid applied, waterproofing, traffic-bearing elastomeric membrane with integral wearing surface, where the surface to which membrane is to be applied is one or more of the following:
1. At pour strips in the parking garage in Level 4 where indicated.
  2. Along curb/sidewalk interfaces where indicated on drawings..
- C. Materials shall be compatible with materials or related Work with which they come into contact, and with materials covered by this Section.
- D. Related Sections: Following Sections contain requirements that relate to this Section.
1. Division 03 Section 033021 "Cast-in-Place Concrete Restoration."
  2. Division 07 Section 071900 "Water Repellents"
  3. Division 07 Section 079233 "Concrete Joint Sealants"
  4. Division 07 Section 079500 "Expansion Joint Assemblies"
  5. Division 09 Section 099120 "Pavement Markings."

**1.3 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination:
1. Materials shall be compatible with materials or related Work with which they come into contact, and with materials covered by this Section.
  2. Distribute reviewed submittals to all others whose Work is related.
- B. Pre-installation Conference: Meet at project site well in advance of time scheduled for Work to proceed to review requirements for Work and conditions that could interfere with successful



topping performance. Require every party concerned with topping Work, or required to coordinate with it or protect it thereafter, to attend. Include manufacturer's technical representative and warranty officer.

- C. Make submittals in accordance with requirements of Division 01 Section 01300, "Submittals."

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each system indicated at least 60 days prior to application.
1. Product description, technical data, appropriate applications and limitations.
  2. Primer type and application rate
  3. Material, and wet mils required to obtain specified dry thickness for each coat.
  4. Type, gradation and aggregate loading required within each coat.
- B. Samples:
1. One 4 in. by 4 in. stepped sample showing each component for each system indicated.
- C. Sample Warranty: For each system indicated.

#### 1.5 INFORMATION SUBMITTALS

##### Certificates

1. Certification that products and installation comply with applicable federal, state of **Colorado**, and local EPA, OSHA and VOC requirements regarding health and safety hazards.
  2. Evidence of applicator's being certified by manufacturer. Evidence shall include complete copy of manufacturer's licensing/certification document, spelling out repair responsibility for warranty claims.
  3. Certification from the Manufacturer that finishes as specified are acceptable for system to be installed at least 1 month before placement of any concrete which will receive traffic topping.
  4. Certification stating static coefficient of friction meets minimum requirements of Americans with Disabilities Act (ADA).
  5. Certification stating materials have been tested and listed for UL 790 Class "A" rated materials/system by UL for traffic topping application specified on project. Containers shall bear UL labels.
  6. Certification from manufacturer confirming compatibility with existing underlying coatings and/or substrate.
- B. Manufacturer's Instructions: for each system indicated.
1. Crack treatment and surface preparation method and acceptance criteria.
  2. Method of application of each coat.
  3. Maximum and minimum allowable times between coats.
  4. Final cure time before resumption of parking and/or paint striping.
  5. Any other special instructions required to ensure proper installation.

C. Field Quality Control:

1. Quality Control Plan as defined in Part 3.
2. Two copies each of manufacturer's technical representative's log for each visit.
3. Testing agency field reports.

D. Qualification Statements

1. Manufacturer's qualifications as defined in the "Quality Assurance" article.
2. Installer's qualifications as defined in the "Quality Assurance" article.
3. Signed statement from applicator certifying that applicator has read, understood, and shall comply with all requirements of this Section.

## 1.6 CLOSEOUT SUBMITTALS

- A. Three copies of System Maintenance Manual.
- B. Five copies of snow removal guidelines for areas covered by Warranty.
- C. Final executed Warranty.

## 1.7 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Project Manager retains right to reject any manufacturer.
  1. Evidence of acceptable previous work on WALKER-designed projects. If none, so state.
  2. Evidence of financial stability acceptable to Project Manager.
  3. Listing of 20 or more projects completed with submitted system, to include:
    - a. Name and location of project.
    - b. Type of system applied.
    - c. On-Site contact with phone number.
- B. Manufacturer's technical representative, acceptable to Project Manager, shall be on site during surface preparation and initial stages of installation.
- C. Installer's Qualifications: Project Manager retains right to reject any manufacturer.
  1. Evidence of compliance with Summary article paragraph "A single installer. . ."
  2. Evidence that installer has successfully performed or has qualified staff who have successfully performed at least 5 verifiable years of installations similar to those involved in this Contract, and minimum 10 projects with submitted system.
  3. Listing of 5 or more installations in climate and size similar to this Project performed by installer's superintendent.
- D. Testing Agency: Independent testing laboratory employed by **Contractor** and acceptable to Project Manager.

## E. Certifications

1. Traffic Topping shall satisfy the current National Volatile Organic Compound (VOC) Emission Standards for Architectural Coatings.
2. Licensing/certification document from manufacturer that confirms system installer is a licensed/certified applicator for the manufacturer and is legally licensed to perform work in the state of **Colorado**.
3. Licensing/certification agreement shall include following information:
  - a. Applicator's financial responsibility for warranty burden under agreement terms.
  - b. Manufacturer's financial responsibility for warranty burden under agreement terms.
  - c. Process for dispute settlement between manufacturer and applicator in case of system failures where cause is not evident or cannot be assigned.
  - d. Authorized signatures for both Applicator Company and Manufacturer.
  - e. Commencement date of agreement and expiration date (if applicable).

**1.8 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver all materials to site in original, unopened containers, bearing following information:
  1. Name of product.
  2. Name of manufacturer.
  3. Date of preparation.
  4. Lot or batch number.
- B. Store materials under cover and protect from weather. Replace packages or materials showing any signs of damage with new material at no additional cost to Owner.

**1.9 FIELD CONDITIONS**

- A. Weather and Substrate Conditions: Proceed with work only when existing and forecast weather and temperature of concrete substrate will permit work in accordance with manufacturer's recommendations.

**1.10 WARRANTY**

- A. System Manufacturer (**New Application**): Furnish Owner with written total responsibility Joint and Several Warranty, detailing responsibilities of manufacturer and applicator with regard to warranty requirements (Joint and Several). The warranty shall provide that system will be free of defects, water penetration and chemical damage related to system design, workmanship or material deficiency, consisting of:
  1. Any adhesive or cohesive failures.
  2. Spalling surfaces.
  3. Weathering.
  4. Surface crazing (does not apply to traffic topping protection course).
  5. Abrasion or tear failure resulting from normal traffic use.
  6. Failure to bridge cracks less than 0.0625 in. or cracks existing at time of traffic topping installation on double tees only.

- B. If material surface shows any of defects listed above, supply labor and material to repair all defective areas and to repaint all damaged line stripes.
- C. Warranty period shall be a 5 year Joint and Several Warranty commencing with date of acceptance of work.
- D. Perform any repair under this warranty at no cost to Owner.
- E. Address the following in the terms of the Warranty: length of warranty, change in value of warranty – if any- based on length of remaining warranty period, transferability of warranty, responsibilities of each party, notification procedures, dispute resolution procedures, and limitations of liability for direct and consequential damages.
- F. Snowplows, vandalism, studded snow tires and abnormally abrasive maintenance equipment are not normal traffic use and are exempted from warranty.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide products of 1 of following, only where specifically named in product category:
  - 1. Carlisle Coating & Waterproofing(CCW), Inc., Sapulpa, OK.
  - 2. Lymtal International Inc. (Lymtal), Lake Orion, MI.
  - 3. Technical Barrier Systems, Inc. (TBS), Oakville, Ontario.
  - 4. Tremco (Tremco), Cleveland, OH.

### 2.2 MATERIALS, TRAFFIC TOPPING

- A. Acceptable [**low odor**] toppings are listed below. One will be selected as an alternate. In bid form, list bid price for each topping listed below. Contract for topping will not necessarily be directed to lowest bid priced topping. Toppings shall be compatible with all other materials in this Section and related work.
  - Heavy Duty:
    - a. Iso-Flex 750U-HL HVT/760U-HL HVT Deck Coating System, LymTal.
    - b. CCW-5123-HD Deck Coating System, CCW.
    - c. Kelmar TE Exposure 2 or 3, TBS.
    - d. Vulkem 350/345/346/346 Deck Coating System, Tremco.
- B. Provide ultraviolet screening for all traffic topping placed on this project.
- C. Finish top coat shall be colored grey.
- D. Substitutions: **None** for this project. Contact Project Manager for consideration for future projects.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine surfaces to receive Work and report immediately in writing to Project Manager any deficiencies in surface which render it unsuitable for proper execution of Work.
- B. Coordinate and verify that related Work meets following requirements before beginning surface preparation and application:
  - 1. Concrete surfaces are finished as acceptable for system to be installed. Correct all high points, ridges, and other defects in a manner acceptable to the Project Manager.
  - 2. Curing compounds used on concrete surfaces are compatible with system to be installed.
  - 3. Concrete surfaces have completed proper curing period for system selected.
  - 4. Joint Sealants are compatible with traffic toppings.

#### 3.2 PREPARATION

- A. Seal all openings to occupied space to prevent cleaning materials, solvents and fumes from infiltration. All protective measures and/or ventilating systems required to prevent infiltration are incidental to this Work.
- B. Acid etching is prohibited.
- C. Remove all laitance and surface contaminants, including oil, grease and dirt by shotblasting. Prepare by sandblasting all surfaces inaccessible to shotblast equipment.
- D. Before applying materials, apply system to small area to assure that it will adhere to substrate and joint sealants and dry properly and to evaluate appearance.
- E. All cracks on concrete surface shall be prepared in accordance with manufacturer's recommendations.
- F. All random cracks on concrete surface less than 0.03 in. wide and showing no evidence of water and/or salt water staining on ceiling below shall receive detail coat unless more complete treatment required in accordance with manufacturer's recommendations. Rout and seal random cracks, construction joints and control joints prior to installation of primer or base coat. **Overbanding of all sealants with manufactures recommended base coat in pourstrips is required prior to base coat application.**
- G. Mask off adjoining surfaces not to receive traffic topping and mask off drains to prevent spillage and migration of liquid materials outside membrane area. Provide neat/straight lines at termination of traffic topping.

#### 3.3 INSTALLATION/APPLICATION

- A. Do all Work in accordance with manufacturer's written instructions and specifications including, but not limited to, moisture content of substrate, atmospheric conditions (including relative humidity and temperature), coverages, mil thicknesses and texture, and as shown on Drawings.

- B. A primer coat is required for all systems. No exception.
- C. Do not apply traffic topping material until concrete has been air dried at temperatures at or above 40°F. for at least 30 days after curing period specified.
- D. Cease material installation under adverse weather conditions, or when temperatures are outside manufacturer's recommended limitations for installation, or when temperature of work area or substrate are below 40°F.
- E. All adjacent vertical surfaces shall be coated with traffic topping minimum of 4 in. above coated horizontal surface. Requirement includes, but is not limited to pipes, columns, walls, curbs (full height of vertical faces of all curbs) and islands.
- F. Complete all Work under this Section before painting line stripes.
- G. Clean off excess material and material smears adjacent to joints as work progresses using methods and materials approved by manufacturers.

### 3.4 FIELD QUALITY CONTROL

- A. Develop a quality control plan for assured specified uniform membrane thickness that utilizes grid system of sufficiently small size to designate coverage area of not more than 5 gallons at specified thickness. In addition, employ wet mil gauge to continuously monitor thickness during application. Average specified wet mil thickness shall be maintained within grid during application with minimum thickness of not less than 80% of average acceptable thickness. Immediately apply more material to any area not maintaining these standards.
- B. Testing Agency employ wet mil gauge to periodically monitor thickness during application.
- C. Install 1 trial section of topping system for each duty grade **and/or recoat system** specified. Do not proceed with further topping application until trial sections accepted in writing by Project Manager. Remove and replace rejected trial sections with acceptable application. Trial section shall also be tested for:
  - 1. Wet mil thickness application.
  - 2. Adhesion to concrete substrate **and/or existing coating(s)**.
  - 3. Overall dry mil thickness.
- D. Use trial sections to determine adequacy of pre-application surface cleaning. Obtain Project Manager, Project Manager and manufacturer acceptance of cleaning before proceeding with topping application.
- E. Determine overall topping system mil thickness:
  - 1. Contractor shall provide 6 in. by 6 in. bond breaker (topping coupon) on concrete surface for each 25,000 sq ft, or fraction thereof, of topping to be placed as directed by Project Manager and manufacturer. Dimensionally locate coupon for easy removal.
  - 2. Contractor shall assist Testing Agency in removing topping coupons from concrete surface at completion of manufacturer-specified cure period. Contractor shall repair coupon area per topping manufacturer's instructions.

3. Testing Agency shall determine dry mil thickness of completed Traffic Topping System, including bond breaker. Take 9 readings (minimum), 3 by 3 pattern at 2 in. on center. No reading shall be taken closer than 1 in. from coupon edge. Report individual readings and overall topping system average to Project Manager. Readings shall be made with micrometer or optical comparator.

**END OF SECTION 071800**

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## SECTION 071900 – WATER REPELLENTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Include, but are not limited to, the Contract Drawings, Construction Contract General Conditions and Special Conditions. For a complete list of the Contract Documents, please refer to Article I of Contract.

#### 1.2 SUMMARY

- A. A single installer shall be responsible for providing complete water proofing system including all products specified in the following Sections:
1. Division 07 Section 071800 "Traffic Coatings"
  2. Division 07 Section 071900 "Water Repellents"
  3. Division 07 Section 079233 "Concrete Joint Sealants"
  4. Division 07 Section 079500 "Expansion Joint Assemblies"
- B. This Section includes penetrating concrete sealer on these surfaces:
1. Supported concrete floor and concrete roof surfaces including curbs, walks, islands and pour strips.
  2. Concrete stair treads and landings.
  3. Slab-on-grade within parking facility, including curbs, walks, and islands.
  4. Approach drives and adjoining sidewalks within construction limits.
- C. Related Sections: Following Sections contain requirements that relate to this Section.
1. Division 03 Section 033021 "Cast-in-Place Concrete Restoration."
  2. Division 07 Section 071800 "Traffic Coatings"
  3. Division 07 Section 079233 "Concrete Joint Sealants"
  4. Division 07 Section 079500 "Expansion Joint Assemblies"
  5. Division 09 Section 099120 "Pavement Markings."

#### 1.3 REFERENCES

- A. ASTM International (ASTM):
1. ASTM D6489, "Standard Test Method for Determining the Water Absorption of Hardened Concrete Treated with a Water Repellent Coating."

#### 1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:



1. Materials shall be compatible with materials or related Work with which they come into contact, and with materials covered by this Section.
  2. Distribute reviewed submittals to all others whose Work is related.
- B. Make submittals in accordance with requirements of Division 01 Section 01300, "Submittals."

### 1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated at least 60 days prior to application.
1. Product description, technical data, appropriate applications, and limitations.
  2. Areas and application rates of materials to be applied.
  3. Proposed alternate application methods, if any.

### 1.6 INFORMATION SUBMITTALS

- A. Certificates
1. Certification that products and installation comply with applicable federal, state of **Colorado**, and local EPA, OSHA and VOC requirements regarding health and safety hazards.
  2. Evidence of applicator's being certified by manufacturer. Evidence shall include complete copy of manufacturer's licensing/certification document, spelling out repair responsibility for warranty claims.
- B. Field Quality Control
1. ASTM D6489 Test Results
  2. Two copies of manufacturer's technical representative's log for each visit.
- C. Qualification Statements
1. Manufacturer's qualifications as defined in the "Quality Assurance" article.
  2. Installer's qualifications as defined in the "Quality Assurance" article.
  3. Signed statement from applicator certifying that applicator has read, understood, and shall comply with all requirements of this Section.

### 1.7 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Project Manager retains right to reject any manufacturer.
1. Evidence of acceptable previous work on WALKER-designed projects. If none, so state.
  2. Evidence of financial stability acceptable to Project Manager.
  3. Listing of 20 or more projects completed with submitted system, to include:
    - a. Name and location of project.
    - b. Type of system applied.
    - c. On-Site contact with phone number.

- B. Installer's Qualifications: Project Manager retains right to reject any installer.
1. Evidence of compliance with Summary article paragraph "A single installer. . ."
  2. Evidence that installer has successfully performed or has qualified staff who have successfully performed at least 5 verifiable years of installations similar to those involved in this Contract, and minimum 10 projects with submitted system.
  3. Listing of 5 or more installations in climate and size similar to this Project performed by installer's superintendent.
- C. Testing Agency: Independent testing laboratory employed by **Contractor** and acceptable to Project Manager.
- D. Certifications
1. Sealer shall satisfy the current national and local Volatile Organic Compound (VOC) Emission Standards for Architectural Coatings.
  2. Licensing/certification document from system manufacturer that confirms system installer is a licensed/certified applicator for the manufacturer and is legally licensed to perform work in the state of **Colorado**.
  3. Licensing/certification agreement must provide following information:
    - a. Applicator's financial responsibility for warranty burden under agreement terms.
    - b. Manufacturer's financial responsibility for warranty burden under agreement terms.
    - c. Process for dispute settlement between manufacturer and applicator in case of system failures where cause is not evident or cannot be assigned.
    - d. Officers' signatures for both Applicator Company and Manufacturer.
    - e. Commencement date of agreement and expiration date (if applicable).

## 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver all materials to site in original, unopened containers, bearing following information:
1. Name of product.
  2. Name of manufacturer.
  3. Date of preparation.
  4. Lot or batch number.
- B. Store materials under cover and protect from weather. Replace packages or materials showing any signs of damage with new material at no additional cost to Owner.
- C. Do not store material on slabs to be post-tensioned before final post-tensioning of slabs is accomplished. At no time shall weight of stored material being placed on slab area, after post-tensioning is completed and concrete has reached specified 28 day strength, exceed total design load of slab area. Between time final post-tensioning is accomplished and time concrete has reached specified 28 day strength, weight of stored material placed on slab area shall not exceed half total design load of slab area.

**1.9 FIELD CONDITIONS**

- A. Weather and Substrate Conditions: Do not proceed with application (except with written recommendation of manufacturer) under any of the following conditions:
1. Ambient temperature is less than 40° F.
  2. Substrate surfaces have cured for less than 1 month.
  3. Rain or temperatures below 40° F predicted for a period of 24 hours.
  4. Less than 24 hours after surfaces became wet.
  5. Substrate is frozen or surface temperature is less than 40° F.
  6. Wind velocities higher than manufacturer's specified limit to prevent solvent flash-off.

**PART 2 - PRODUCTS****2.1 MANUFACTURERS**

- A. Manufacturer: Subject to compliance with requirements, provide products of one of following, only where specifically named in product category:
1. Advanced Chemical Technologies Inc. (ACT), Oklahoma City, OK.
  2. The Euclid Chemical Company (Euclid), Cleveland, OH
  3. Evonik Degussa Corporation (Evonik Degussa), Parsippany, NJ.
  4. KwikBond Polymers (KwikBond), Benicia, CA
  5. Lymtal International Inc. (Lymtal), Lake Orion, MI.
  6. Transpo Industries, Inc. (Transpo), New Rochelle, NY
  7. Sika Corporation (Sika), Lundhurst, NJ

**2.2 MATERIALS, CONCRETE SEALER**

- A. Silane (90% or greater solids, 400 g/L or less VOC):
1. Iso-Flex 618-100 CRS, 200 sf/g, Lymtal.
  2. Protectosil BHN, 200 sf/g, Evonik Degussa
  3. Sil-Act ATS-100 LV, 200 sf/g, ACT.
- B. Proposed substitutions: None for this project. Contact Project Manager for consideration for future projects.

**2.3 MATERIALS, HEALER/ SEALER**

Products shall be capable of achieving adequate cure such that traffic can be restored to surface within 4 hours of application.

- A. Repair for isolated random horizontal cracks 0.01 in. to 0.06 in. wide. Acceptable products:
1. KBP 204 P Seal, KwikBond
  2. SikaPronto 19TF, Sika.

- 3. T-78, Transpo
- B. Proposed substitutions: **None** for this project. Contact Project Manager for consideration for future projects.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine surfaces to receive Work and report immediately in writing to Project Manager any deficiencies in surface which render it unsuitable for proper execution of Work.
- B. Coordinate and verify that related Work meets following requirements before beginning surface preparation and application:
  - 1. Concrete surface finishes are acceptable for system to be installed.
  - 2. Curing compounds used on concrete surfaces are compatible with system to be installed.
  - 3. Concrete surfaces have completed proper curing period for system selected.
  - 4. Control joint and expansion joint Work is complete and has been accepted by Project Manager.

#### 3.2 PREPARATION

- A. Seal all openings to occupied space to prevent cleaning materials, solvents and fumes from infiltration. All protective measures and/or ventilating systems required to prevent infiltration are incidental to this Work.
- B. Acid etching is prohibited.
- C. Repair or replace all sealant materials damaged by surface preparation operations.
- D. Shot blast clean all surfaces to be sealed as acceptable to sealer manufacturer before sealer application. Shot blasting is not recommended or required for new slabs that are water cured per ACI 308, Paragraph 2.2. Cleaning method and materials shall be sufficient to allow absorption criteria stated in Field Quality Control article to be met. Prepare by sandblasting all surfaces inaccessible to shotblast equipment.
- E. Equipment used during floor slab cleaning shall not exceed height limitation of facility and shall not exceed 3,000 lb axle load or vehicle gross weight of 6,000 lb.
- F. Mask off adjoining surfaces not to receive sealer and mask off drains to prevent spillage and migration of liquid materials outside sealer area. Provide neat/straight lines at termination of sealer.

#### 3.3 INSTALLATION/APPLICATION

- A. Do all Work in accordance with manufacturer's written instructions and specifications including, but not limited to, moisture content of substrate, atmospheric conditions (including relative humidity and temperature), coverage, mil thickness and texture, and as shown on Drawings.
- B. Clean all surfaces affected by sealer material overspray and repair all damage caused by sealer material overspray to adjacent construction or property at no cost to Owner.
- C. Clean off excess material as work progresses using methods and materials approved by manufacturer.

### **3.4 FIELD QUALITY CONTROL**

- A. Install 3 trial sections of sealer to verify treated surface is not glazing as result of sealer application. If application of sealer causes glazing at trial section, contact sealer manufacturer to obtain written recommendations for solving problem. Do not proceed with sealer application following trial section applications until directed to do so in writing by Project Manager.

### **3.5 NON-CONFORMING WORK**

- A. Unsatisfactory Field Quality Control test results shall be grounds for rejection of sealer or sealer application rate. Perform sealer reapplication at no additional cost to Owner.

### **END OF SECTION 071900**

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**SECTION 079233 – CONCRETE JOINT SEALANTS****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Include, but are not limited to, the Contract Drawings, Construction Contract General Conditions and Special Conditions. For a complete list of the Contract Documents, please refer to Article I of Contract.

**1.2 SUMMARY**

- A. A single installer shall be responsible for providing complete water proofing system including all products specified in the following Sections:
1. Division 07 Section 071800 "Traffic Coatings"
  2. Division 07 Section 071900 "Water Repellents"
  3. Division 07 Section 079233 "Joint Sealants"
  4. Division 07 Section 079500 "Expansion Joint Assemblies"
- B. This Section includes the following:
1. Exterior joints in the following horizontal traffic bearing surfaces:
    - a. Construction joints in cast-in-place concrete slab.
    - b. Control joints in pour strips, slabs and topping slabs, sidewalks and curbs.
    - c. Perimeter of all floor drains.
    - d. Perimeter of all concrete repair patches.
- C. Related Sections: Following Sections contain requirements that relate to this Section.
1. Division 03 Section 033021 "Cast-in-Place Concrete Restoration."
  2. Division 07 Section 071800 "Traffic Coatings."
  3. Division 07 Section 071900 "Water Repellents."
  4. Division 07 Section 079500 "Expansion Joint Assemblies."
  5. Division 09 Section 099120 "Pavement Markings."

**1.3 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination:
1. Materials shall be compatible with materials or related Work with which they come into contact, and with materials covered by this Section.
  2. Distribute reviewed submittals to all others whose Work is related.
  3. Coordinate layout of joint system and approve methods for providing joints with precast concrete and concrete contractors.
  4. Inspect site and precast plant before precast production to insure proper joint configuration.

- B. Make submittals in accordance with requirements of Division 01 Section 01300, "Submittals."

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each system indicated at least 30 days prior to application.
  - 1. Product description, technical data, appropriate applications and limitations.
  - 2. Primer type and application rate
- B. Samples:
  - 1. One for each system indicated.
- C. Sample Warranty: For each system indicated.

#### 1.5 INFORMATION SUBMITTALS

- A. Certificates:
  - 1. Evidence of installer's being certified by manufacturer. Evidence shall include complete copy of manufacturer's licensing/certification document, spelling out repair responsibility for warranty claims.
  - 2. Certification from the Manufacturer that joint details as specified are acceptable for system to be installed at least 1 month before placement of any concrete which will receive joint sealant.
- B. Field Quality Control:
  - 1. Two copies each of manufacturer's technical representative's log for each visit.
  - 2. Testing agency field and test reports.
- C. Qualification Statements:
  - 1. Manufacturer's qualifications as defined in the "Quality Assurance" article.
  - 2. Installer's qualifications as defined in the "Quality Assurance" article.
  - 3. Signed statement from this Section applicator certifying that applicator has read, understood, and shall comply with all requirements of this Section.

#### 1.6 CLOSEOUT SUBMITTALS

- A. Three copies of System Maintenance Manual.
- B. Five copies of snow removal guidelines for areas covered by Warranty.
- C. Final executed Warranty.

## 1.7 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Project Manager retains right to reject any manufacturer.
1. Evidence of acceptable previous work on WALKER-designed projects. If none, so state.
  2. Evidence of financial stability acceptable to Project Manager.
  3. Listing of 20 or more projects completed with submitted system, to include:
    - a. Name and location of project.
    - b. Type of system applied.
    - c. On-Site contact with phone number.
- B. Manufacturer's technical representative, acceptable to Project Manager, shall be on site during surface preparation and initial stages of installation.
- C. Installer's Qualifications: Project Manager retains right to reject any manufacturer.
1. Evidence of compliance with Summary article paragraph "A single installer. . ."
  2. Evidence that installer has successfully performed or has qualified staff who have successfully performed at least 5 verifiable years of installations similar to those involved in this Contract, and minimum 10 projects with submitted system.
  3. Listing of 5 or more installations in climate and size similar to this Project performed by installer's superintendent.
- D. Testing Agency: Independent testing laboratory employed by **Contractor** and acceptable to Project Manager.
- E. Certifications:
1. Licensing/certification document from system manufacturer that confirms system installer is a licensed/certified applicator for the manufacturer and is legally licensed to perform work in the state of **Colorado**.
  2. Licensing/certification agreement shall include following information:
    - a. Applicator's financial responsibility for warranty burden under agreement terms.
    - b. Manufacturer's financial responsibility for warranty burden under agreement terms.
    - c. Process for dispute settlement between manufacturer and applicator in case of system failures where cause is not evident or cannot be assigned.
    - d. Authorized signatures for both Applicator Company and Manufacturer.
    - e. Commencement date of agreement and expiration date (if applicable).

## 1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver all materials to site in original, unopened containers, bearing following information:
1. Name of product.
  2. Name of manufacturer.
  3. Date of preparation.
  4. Lot or batch number.



- B. Store materials under cover and protect from weather. Replace packages or materials showing any signs of damage with new material at no additional cost to Owner.
- C. Do not store material on slabs to be post-tensioned before final post-tensioning of slabs is accomplished. At no time shall weight of stored material being placed on slab area, after post-tensioning is completed and concrete has reached specified 28 day strength, exceed total design load of slab area. Between time final post-tensioning is accomplished and time concrete has reached specified 28 day strength, weight of stored material placed on slab area shall not exceed half total design load of slab area.

### **1.9 FIELD CONDITIONS**

- A. Weather and Substrate Conditions: Proceed with work only when existing and forecast weather and temperature of concrete substrate will permit work in accordance with manufacturer's recommendations.

### **1.10 WARRANTY**

- A. System Manufacturer: Furnish Owner with written total responsibility Joint and Several Warranty, detailing responsibilities of manufacturer and installer with regard to warranty requirements (Joint and Several). The warranty shall provide that system will be free of defects, water penetration and chemical damage related to system design, workmanship or material deficiency, consisting of:
  - 1. Any adhesive or cohesive failures.
  - 2. Weathering.
  - 3. Abrasion or tear failure resulting from normal traffic use.
- B. If material surface shows any of defects listed above, supply labor and material to repair all defective areas and to repaint all damaged line stripes.
- C. Warranty period shall be a 5 year Joint and Several Warranty commencing with date of acceptance of work.
- D. Perform any repair under this warranty at no cost to Owner.
- E. Address the following in the terms of the Warranty: length of warranty, change in value of warranty – if any- based on length of remaining warranty period, transferability of warranty, responsibilities of each party, notification procedures, dispute resolution procedures, and limitations of liability for direct and consequential damages.
- F. Snowplows, vandalism, and abnormally abrasive maintenance equipment are not normal traffic use and are exempted from warranty.

**PART 2 - PRODUCTS****2.1 MANUFACTURERS**

- A. Manufacturer: Subject to compliance with requirements, provide products of 1 of following, only where specifically named in product category:
1. Lymtal International Inc. (Lymtal), Lake Orion, MI.
  2. Pecora Corporation (Pecora), Harleysville, PA.
  3. Sika Corporation (Sika), North Canton, OH.
  4. Tremco (Tremco), Cleveland, OH.

**2.2 MATERIALS, JOINT SEALANT SYSTEM**

- A. Provide complete system of compatible materials designed by manufacturer to produce waterproof, traffic-bearing control joints as detailed on Drawings.
- B. Compounds used for sealants shall not stain masonry or concrete. Aluminum pigmented compounds not acceptable.
- C. Color of sealants shall match adjacent surfaces.
- D. Closed cell or reticulated backer rods: Acceptable products:
1. "Sof Rod," Nomaco Inc., 501 NMC Drive, Zebulon, NC 27597. (800) 345-7279 ext. 341.
  2. "ITP Soft Type Backer Rod," Industrial Thermo Polymers Limited, 2316 Delaware Ave., Suite 216, Buffalo, NY 14216. (800) 387-3847.
- E. Bond breakers and fillers: as recommended by system manufacturer.
- F. Primers: as recommended by sealant manufacturer.
- G. Acceptable sealants are listed below. Sealants shall be compatible with all other materials in this Section and related work.
- H. Acceptable Fast Cure polyurethane control joint sealants (traffic bearing):
1. Iso-flex 888 QC, Lymtal.
- I. Acceptable polyurethane vertical and cove joints sealants (non-traffic bearing):
1. Sikaflex-2c NS, Sika.
  2. Dymeric THC 901 (cove only), Tremco.
  3. Dynatred, Pecora.
  4. Iso-flex 881, Lymtal.
- J. Proposed Substitutions: **None** for this project. Contact Project Manager for consideration for future projects.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine surfaces to receive Work and report immediately in writing to Project Manager any deficiencies in surface which render it unsuitable for proper execution of Work.
- B. Coordinate and verify that related Work meets following requirements before beginning installation
  - 1. Concrete surfaces are finished as acceptable for system to be installed.
  - 2. Curing compounds used on concrete surfaces are compatible with system to be installed.
  - 3. Concrete surfaces have completed proper curing period for system selected.

#### **3.2 PREPARATION**

- A. Seal all openings to occupied space to prevent cleaning materials, solvents and fumes from infiltration. All protective measures and/or ventilating systems required to prevent infiltration are incidental to this Work.
- B. Correct unsatisfactory conditions before installing sealant system.
- C. Acid etching is prohibited.
- D. Grind joint edges smooth and straight with beveled grinding wheel before sealing. All surfaces to receive sealant shall be dry and thoroughly cleaned of all loose particles, laitance, dirt, dust, oil, grease or other foreign matter. Obtain written approval of method from system manufacturer before beginning cleaning.
- E. Check preparation of substrate for adhesion of sealant.
- F. Prime and seal joints and protect as required until sealant is fully cured. A primer coat is required for all systems.

#### **3.3 INSTALLATION/APPLICATION**

- A. Do all Work in strict accordance with manufacturer's written instructions and specifications including, but not limited to, moisture content of substrate, atmospheric conditions (including relative humidity and temperature), thicknesses and texture, and as shown on Drawings.
- B. Completely fill joint without sagging or smearing onto adjacent surfaces.
- C. Fill horizontal joints slightly recessed to avoid direct contact with wheel traffic.
- D. Clean off excess material and material smears adjacent to joints as work progresses using methods and materials approved by manufacturers.

- E. Cease material installation under adverse weather conditions, or when temperatures are outside manufacturer's recommended limitations for installation, or when temperature of work area or substrate are below 40°F.

### **3.4 FIELD QUALITY CONTROL**

- A. Contractor and Project Manager will jointly determine which one of following 2 methods of sealant testing to verify sealant profile:
  - 1. Contractor, at Project Manager's direction, shall cut out lesser of 1% of total lineal footage placed or total of 100 lineal ft of joint sealant at isolated/random locations (varying from in. to ft of material) for Project Manager and Manufacturer's Representative inspection of sealant profile.
  - 2. Contractor, at Project Manager's direction, shall install 3 trial joint sections of 20 ft each. Contractor shall cut out joint sections, as selected by Project Manager, for Project Manager and Manufacturer's Representative inspection. Additional isolated/random removals may be required where sealant appears deficient. Total cut out sealant shall not exceed lesser of 1% of total lineal footage placed or total of 100 lineal ft of joint sealant at isolated/random locations (varying from in. to ft of material) for Project Manager and Manufacturer's Representative inspection of sealant profile.
- B. Repair all random joint sealant "cut out" sections at no cost to Owner.
- C. Flood test joints where shown on Drawings.
- D. Testing Agency:
  - 1. Check shore hardness per ASTM standard specified in sealant manufacturer's printed data.
  - 2. If flood test of joints required by this Section, report results to Project Manager.

### **END OF SECTION 079233**

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**SECTION 079500 – EXPANSION JOINT ASSEMBLIES****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Include, but are not limited to, the Contract Drawings, Construction Contract General Conditions and Special Conditions. For a complete list of the Contract Documents, please refer to Article I of Contract

**1.2 SUMMARY**

- A. A single installer shall be responsible for providing complete water proofing system including all products specified in the following Sections:
1. Division 07 Section 071800 "Traffic Coatings"
  2. Division 07 Section 071900 "Water Repellents"
  3. Division 07 Section 079233 "Concrete Joint Sealants"
  4. Division 07 Section 079500 "Expansion Joint Assemblies"
- B. This Section includes the following:
1. Standard expansion joint systems:
    - a. Reinforced rubber pad (nosepad), blockout mounted, mechanically anchored extruded rubber joint system
  2. Seismic slide plate expansion joint seismic systems
  3. Vertical expansion joint systems
  4. Compression seal joint system
  5. Secondary moisture containment system
- C. Related Sections: The following Sections contain requirements that relate to this section:
1. Division 03 Section 033021 "Cast-in-Place Concrete Restoration".
  2. Division 07 Section 079233 "Concrete Joint Sealants" for liquid-applied joint sealants.
  3. Division 09 Section 099120 "Pavement Markings".

**1.3 DEFINITIONS**

- A. Maximum Joint Width: Widest linear gap a joint system tolerates and in which it performs its designed function without damaging its functional capabilities.
- B. Minimum Joint Width: Narrowest linear gap a joint system tolerates and in which it performs its designed function without damaging its functional capabilities.

- C. Movement Capability: Value obtained from the difference between widest and narrowest widths of a joint opening typically expressed in numerical values (mm or inches) or a percentage (plus or minus) of nominal value of joint width. Movement capability is to include anticipated movements from concrete shrinkage, concrete shortening and creep from post-tensioning or prestressing, cyclic thermal movements, and seismic movements.
- D. Nominal Joint Width: Width of linear opening specified in practice and in which joint system is installed.
- E. Nominal Form Width: Linear gap in joint system at time of forming or erection of structural elements bounding the expansion joint.
- F. Service Load Level: Defined level of load under which joint assembly remains elastic and fully functional.
- G. Fatigue Load Level: Defined level of load under which joint assembly remains elastic and fully functional, including all noise mitigation components, for the stated number of cycles.
- H. Collapse Load Level: Defined level of load under which joint assembly remains capable of bridging the gap, although plates may yield and components may break.

#### 1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
  - 1. General:
    - a. Coordinate and furnish anchorages, setting drawings, and instructions for installing joint systems. Provide fasteners of metal, type, and size to suit type of construction indicated and to provide for secure attachment of joint systems.
    - b. Coordinate requirements for transitions, tolerances, levelness, and plumbness to ensure the installed expansion joint system can perform with expected movement capabilities.
    - c. Coordinate and assign responsibility for preparation of concrete surfaces adjacent to expansion joints.
    - d. Expansion joint surface areas each side of joint gap shall have a vertical differential less than  $\frac{1}{4}$ " and meet requirements of expansion joint manufacturer.
    - e. Minor surface defects shall be repaired according to manufacturer's recommendations. Repair materials shall be compatible with intended system materials and shall be approved by the Project Manager prior to surface preparation and installation.
    - f. Submit for approval repair products and procedures for all major defects. Repair description shall indicate materials, manufacturer's requirements, expected service life, and maintenance requirements. Take all precautions necessary to avoid damaging adjacent surfaces and embedded reinforcement or post tensioned anchors and tendons. Contractor is responsible for any damages. Concrete repairs shall be of rectangular configuration, with no feather-edged surfaces. Final surface preparation of all repairs shall be sandblasting, or approved equivalent.
    - g. Coordinate layout of joint system and approval of methods for providing joints.
  - 2. Joint Opening Width:

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- a. Use temperature adjustment table to properly size joint gap at time of concrete pour and show that proposed joint system is capable of equal individual and combined movements in each direction when installed at designated temperature.
  - b. Where installation temperature is other than specified temperature, perform calculations showing joint is capable of movement within design temperature range for “other” temperature, and that design and installation follow manufacturer’s recommendations.
  - c. Expansion joint movement capability and the actual joint gap movement may not coincide. Construct actual joint gap in accordance with expansion design criteria.
3. Blockouts:
- a. Float expansion joint blockouts to remove all air pockets, voids and spalls caused by form work.
  - b. Blockouts shall be plumb with maximum tolerance per Manufacturer or not more than 0.125 inches deviation in 12 inches. Noncompliant blockouts shall be considered major defects.
  - c. Blockouts shall be straight and true with maximum tolerance per Manufacturer or not more than 0.250 inches deviation in 10 lineal feet. Noncompliant blockouts shall be considered major defects.
- B. Preinstallation Meetings: Meet at project site well in advance of time scheduled for Work to proceed to review requirements for Work and conditions that could interfere with successful expansion joint system performance. Require every party concerned with concrete formwork, blockout, concrete placement, or others required to coordinate or protect the Work thereafter, to attend. Include Engineer of Record and manufacturer’s technical representative and warranty officer.
- C. Make submittals in accordance with requirements of Division 01 Section 01300, “Submittals”.

**1.5 ACTION SUBMITTALS**

- A. Product Data: For each type of product indicated:
1. Construction details, material descriptions, dimensions, and finishes.
  2. Proposed method of preparation of concrete surface to receive expansion joint systems.
  3. Proposed method and details for treatment of cracks, bugholes, or other potential concrete surface defects in areas to receive expansion joint systems.
  4. Horizontal spacing between embedded metals and plates to allow for volume change due to thermal conditions.
  5. Temperature adjustment table showing formed gap at the time of concrete placement calculated at 10°F increments and a calculation showing joint system is capable of movement within the design temperature range.
- B. Shop Drawings: For each type of product indicated:
1. Placement Drawings: Show project conditions including, but not limited to, line diagrams showing plans, elevations, sections, details, splices, blockout requirement, and terminations. Provide isometric or clearly detailed drawings depicting how components interconnect. Include reviewed and approved details from others whose work is related. Other information required to define joint placement or installation.

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2. Joint System Schedule: Prepared by or under the supervision of the supplier. Include the following information in tabular form:
  - a. Manufacturer and model number for each joint system.
  - b. Joint system location cross-referenced to Drawings.
  - c. Form width.
  - d. Nominal joint width.
  - e. Movement capability.
  - f. Minimum and maximum joint width.
  - g. Classification as thermal or seismic.
  - h. Materials, colors, and finishes.
  - i. Product options.
  - j. Fire-resistance ratings.
3. Components and systems required to be designed by a professional engineer, shall bear such professional's written approval when submitted.

## C. Samples:

1. Samples for each type of joint system indicated.
  - a. Submit **2** samples for each type. Full width by 6 inches (150 mm) long, for each system required.
2. Develop mockups of concrete surface preparation for review and to establish a control for the application.

## D. Delegated Design Submittals:

1. Analysis performed by a licensed professional engineer in State of **Colorado** indicating expansion joint system complies with expansion joint performance and design criteria of this specification and is suitable for use in conditions of this project. Provide a summary of design criteria used in design.

**1.6 INFORMATIONAL SUBMITTALS**

## A. Certificates

1. Certification that products and installation comply with applicable federal, state of Colorado, and local EPA, OSHA and VOC requirements regarding health and safety hazards.
2. ADA Certification: Prior to installation, submit written certification from manufacturer indicating that expansion joints conform to Americans with Disabilities Accessibility Guidelines for Buildings and Facilities, as published by U.S. Architectural & Transportation Barriers Compliance Board, 1331 F Street, N.W., Suite 1000, Washington, DC 20004-1111. 1-800-872-2253.
  - a. Submit test reports from accredited laboratory attesting to joint systems' movement capability and ADA compliance.
  - b. Static coefficient of friction shall meet minimum requirements of Americans with Disabilities Act (ADA).



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3. Signed statement from installer/applicator certifying that installer/applicator has read, understood, and shall comply with all requirements of this Section.
4. Signed statement from manufacturer's representative that they have read, understood, and shall comply with all requirements of this section.

**B. Field Quality Control**

1. Two copies each of manufacturer's technical representative's log for each visit.

**C. Qualification Statements**

1. Manufacturer's qualifications as defined in the "Quality Assurance" article within 60 days of project award.
2. Installer's qualifications as defined in the "Quality Assurance" article.
3. Evidence of manufacturer's certification of installer/applicator. Evidence shall include complete copy of manufacturer's licensing/certification document, spelling out repair responsibility for warranty claims.

**1.7 CLOSEOUT SUBMITTALS****A. Operation and Maintenance Data**

1. Maintenance Manual: 3 copies of System Maintenance Manual.
2. Five copies of snow removal guidelines for areas covered by warranty.

**B. Warranty Documentation: 2 executed copies of Labor and Material Warranty including all terms, conditions and maintenance requirements.****1.8 QUALITY ASSURANCE****A. Manufacturer Qualifications: Owner retains right to reject any manufacturer.**

1. Evidence of compliance with Experience Record and Qualifications paragraph below.
2. Evidence of acceptable previous work on WALKER-designed projects. If none, so state.
3. Copy of sample warranty that meets the requirements of the "Warranties and Bonds" article in Section 01740
4. Evidence of financial stability acceptable to Project Manager.
5. Evidence of compliance with "Single Installer" requirement.

**B. Experience Record and Qualifications: Verification of systems shall be established by either System Validation or Design Validation.**

1. System Validation: Submitted system for similar applications with minimum five (5) years experience and five (5) verified projects completed. Validation submittal shall include:
  - a. Design calculations, including finite element analysis for all load carrying elements, using the design criteria listed in Part 2.
  - b. Field history as defined below.
  - c. Results of seismic load tests defined below for projects with a Seismic Design Category of C or higher.

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2. Design Validation: Submitted system for similar application with less than five (5) years experience shall include a design validation submittal. Validation submittal shall include:
    - a. Design calculations, including finite element analysis for all load carrying elements, using the design criteria listed in Part 2.
    - b. Results of cyclic and seismic load tests defined below.
  3. Acceptable field history consists of successful performance of five (5) installations in place over the previous five (5) years under similar project loads, traffic frequency, footprints, and joint sizes. Include sketches, photos, and references for each installation. Installations shall have experienced at least moderate levels of traffic.
  4. Vertical and horizontal cyclic load tests shall be performed at an independent laboratory, and witnessed by a professional engineer who shall issue a stamped final report of the test results. Tests shall consist of cyclic load testing using the design criteria in Part 2 and project joint sizes. Tests shall meet the following criteria:
    - a. Vertical load cycle counts shall be a minimum of 2, 1000, and 1,000,000 cycles for the collapse, service, and fatigue level loads respectively.
    - b. Horizontal load cycle counts shall be a minimum of 1,000 and 25,000 cycles for the service and fatigue level loads respectively. No horizontal load test is required for the collapse level loads.
    - c. The vertical service and fatigue load test shall consist of a rolling tire at specified load in order to gauge joint wear. Test specimen shall show no signs of yielding of load carrying elements.
    - d. Observation and testing results of performance for noise mitigation elements shall be reported.
    - e. Different specimens may be used for the tests if they are of the same size and design. Conditions adjacent to the joint, e.g. the blockout region, shall be in keeping with the system design. Test joints shall be not less than 4 feet per tire in length, and shall replicate typical field installed geometry.
  5. Seismic load tests shall be performed by an independent laboratory and witnessed by a professional engineer who shall issue a stamped final report of the test results. Tests shall consist of harmonic cycle testing at seismic velocities and displacements.
    - a. Test displacements shall not be less than 85% of the joint's design range, at a frequency not less than 0.5Hz, for not less than 10 cycles.
    - b. Longitudinal displacements (parallel to the joint) shall be 10% of the transverse displacement (perpendicular to the joint), but not less than 1", for joints where only unidirectional movement is expected, and 50%, but not less than 1", for joints in which bidirectional movement is anticipated. Longitudinal and transverse displacements shall be applied simultaneously with a vertical offset of 1/2" between opposite sides of the joint.
    - c. Seismic testing is not required for small movement joints with seismic design displacements of less than 2" (+/-2", 4" total).
- C. Installer Qualifications: An employer of workers, including superintendent for this project, trained and approved by manufacturer.
- D. Testing Agency: Independent testing laboratory employed by **Contractor** and acceptable to Project Manager.

**1.9 DELIVERY, STORAGE AND HANDLING**

- A. Deliver all materials to site in original, unopened containers, bearing following information:
1. Name of product.
  2. Name of manufacturer.
  3. Date of preparation.
  4. Lot or batch number.
- B. Store materials under cover and protect from weather. Replace packages or materials showing any signs of damage with new material at no additional cost to Owner.

**1.10 WARRANTY**

- A. Warranty period shall be a **5** year labor and materials warranty commencing with date of acceptance of work.
- B. Installation Requirements: Include a written plan of construction and coordination requirements, to allow joint system installation to proceed with specified warranty, that specifically addresses the following:
1. Block out acceptance criteria.
  2. Surface preparation acceptance criteria.
  3. Crack, surface defect, and detailing recommendations.
  4. Method of protection of surrounding surfaces.
  5. Method of expansion joint system installation description.
  6. Primer type and application rate.
  7. Method of preparation of all glands and reinforced membranes.
  8. Temperature, humidity and other weather constraints. Specify substrate moisture testing criteria, if any.
  9. Final cure time before removal of protection, resumption of traffic, and/or paint striping.
  10. Any other special instructions required to ensure proper installation.
- C. Quality Service Requirements: Show evidence of licensed/approved installer. List of names, addresses and phone numbers, with copies of certification/approval agreement with each, satisfies requirement. Licensing/certification agreement shall include following information:
1. Installer's financial responsibility for warranty burden under agreement terms.
  2. Manufacturer's financial responsibility for warranty burden under agreement terms.
  3. Process for dispute settlement between manufacturer and installer in case of system failures where cause is not evident or cannot be assigned.
  4. Authorized signatures for both Installer Company and Manufacturer.
  5. Commencement date of agreement and expiration date (if applicable).
  6. Provide copy of contractor's field application quality control procedures.
- D. Warranty shall be jointly executed by Manufacturer and Installer for labor and materials. Detail responsibilities of General Contractor, manufacturer and installer with regard to warranty requirements, as outlined in the Manufacturer's warranty and related Licensing/Certification documents. Warranty shall provide that system shall be free of defects, water penetration and chemical damage related to system design, workmanship or material deficiency, consisting of:

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1. Any water leakage through expansion joint system or leaking conditions of reinforced membrane, other waterproofing components, or glands.
  2. Any adhesive or cohesive failures of the system.
  3. Shifting of plates out of alignment due to system failure.
  4. Loose plates, anchor blocks, bolts.
  5. Metal to metal vibration causing noises during use.
  6. Metal to non-metal vibration causing noises during use.
  7. Tears, weathering, or degradation in gland from normal use.
  8. Expansion joint glands are considered defective if they buckle upwards beyond the level of the floor surface after installation or downward in excess of ½ inch below the floor surface.
- E. If expansion joint systems or components show any of defects listed above, supply labor and material to repair all defects at no cost to Owner.

**PART 2 - PRODUCTS****2.1 SYSTEM DESCRIPTION**

- A. A single Installer shall be responsible for providing complete expansion joint system.
- B. Obtain all joint systems through one source from a single manufacturer.
- C. Drawings indicate size, profiles, and dimensional requirements of joint systems and are schematic for systems indicated.
- D. Do not modify intended aesthetic effects, as judged solely by Project Manager, except with Project Manager's approval. If modifications are proposed, submit comprehensive explanatory data to Project Manager for review.

**2.2 PERFORMANCE REQUIREMENTS**

- A. Intent of this section is to insure that installed expansion joints allow pedestrian and vehicular traffic to pass in a smooth, quiet fashion with minimal maintenance required over a period of not less than 10 years. Expansion joints shall not only function as structural bridging elements, but must also accommodate structural expansions/contractions and minimize water leakage.
- B. Provide engineering of expansion joint for preparation of final details for fabrication and construction of all concrete openings, expansion joint elements and required accessories. An integral part of this project is engineering for the following:
  1. Include engineering calculations for the size and forming of concrete openings to provide nominal joint width as indicated on drawings. Provide a summary of the design criteria used in the design.
  2. Include engineering calculations for the appropriate size of expansion joint elements in accordance with the expansion joint assembly performance criteria. Include installation requirements of expansion joint assembly for specific project conditions and scheduling. Provide a summary of design criteria used in design.

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3. Analysis shall be performed by a licensed professional engineer in State of **Colorado** indicating joint system complies with criteria and requirements of this specification and is suitable for use in conditions of this project.
  4. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Project Manager.
- C. Expansion joint design shall meet or exceed all expected movements shown on drawings.
- D. Nominal form width shown on the drawings shall be adjusted for the ambient temperature at time of concrete placement and designer shall verify that width of joint at installation shall meet minimum installation requirements.
- E. Expansion joint systems shall be capable of resisting a differential vertical movement of ½ inch.
- F. Materials shall be supplied in lengths to minimize or eliminate the need to splice waterproofing components.
1. Waterproofing materials directly exposed to vehicular traffic shall be supplied with no joints in vehicle drive aisles.
  2. All mitered splices shall be performed at the factory and provide sufficient gland length for butt splicing with field splicing equipment.
  3. All Santoprene butt to butt splices shall be heat welded.
  4. Butt to butt splices with other materials shall be per manufacturer's recommendations.
- G. Design system for passenger **and truck or bus** vehicles traveling at speeds higher than those expected in a parking structure.
- H. Fire-Test-Response Characteristics: Where indicated, provide expansion joint system and fire-barrier assemblies identical to those of assemblies tested for fire resistance per UL 2079 by a testing and inspecting agency acceptable to authorities having jurisdiction.
- I. Walking Surfaces: Expansion joint assemblies at walking areas subject to pedestrian traffic shall provide a smooth, slip resistant walking surface for pedestrians with these minimum requirements:
1. Shall provide walking surfaces in accordance with ASTM – F 1637 Standard Practice for Safe Walking Surfaces.
  2. Shall be designed to comply with “Americans with Disabilities Act (ADA), Accessibility Guidelines (ADAAG)” **and ICC A117.1**. Americans with Disabilities Accessibility Guidelines for Buildings and Facilities, as published by U.S. Architectural & Transportation Barriers Compliance Board, 1331 F Street, N.W., Suite 1000, Washington, DC 20004-1111. 1-800-872-2253.
  3. Adjoining walkway surfaces shall be flush and meet the following minimum requirements:
    - a. Changes in level of less than ¼ inch in height may be without edge treatment as shown in ADA Figure 303.2 and on the Drawings.
    - b. Changes in Level between ¼ inch and ½ inch in height shall be beveled with a slope no greater than 1:2 as shown in ADA Figure 303.3 and on the Drawings.
    - c. Changes in level greater than ½ inch in height are not permitted unless they can be transitioned by means of a ramp as shown on Drawings.

- d. Openings in floor or ground surfaces shall not allow passage of a sphere more than ½ inch diameter except as allowed for elevators and platform lifts as shown in ADA Figure 302.3 and on the Drawings.

**2.3 MANUFACTURERS**

- A. Subject to compliance with requirements, provide products from one of following manufacturers (listed in alphabetical order), only where specifically named in product categories:
  - 1. Lymtal International Inc. Lake Orion, MI (Lymtal).
  - 2. Watson Bowman Acme Corporation, a Division of BASF Construction Chemicals NA, Amherst, NY (WBA).

**2.4 PRODUCTS, STANDARD EXPANSION JOINT SYSTEMS**

- A. Reinforced rubber pad (nosepad), blockout mounted, mechanically anchored expansion joint sealant system.
  - 1. Iso-Flex Dura-Block System, Lymtal.
  - 2. Wabo®ElastoFlex Expansion Joint System with EFJ Series gland element, WBA.
- B. Substitutions: **None** for this project. Contact Project Manager for consideration for future projects.

**2.5 PRODUCTS, SEISMIC SLIDE PLATE EXPANSION JOINT SYSTEMS**

- A. Performance and Design Criteria
  - 1. In addition to the performance requirements stated above provide structural engineering of expansion joint assembly and required accessories.
  - 2. Vehicle Loads: Design expansion joint assemblies subject to vehicular traffic for vehicular loading, including vertical wheel load and associated horizontal thrust generated by passing vehicular traffic in drive aisles, but not less than the following for each loading level:
    - a. For passenger vehicle loading, a minimum vertical concentrated wheel load, acting on a **[4.5" by 4.5"]** area as follows:
 

1)	Service Level	3,000 lbs.
2)	Fatigue Level	2,250 lbs.
3)	Collapse Level	4,500 lbs.
    - b. Expansion joint assemblies subject to snow plows shall be recessed and designed for passenger vehicle loading a minimum vertical concentrated wheel load, acting on a **[4.5" by 4.5"]** area as follows:
 

1)	Service Level	4,000 lbs.
2)	Fatigue Level	3,000 lbs.
3)	Collapse Level:	6,000 lbs.

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- c. For truck or bus vehicle loading, a minimum vertical concentrated wheel load, acting on a [10.0" by 20.0"] area as follows:
- |    |                |             |
|----|----------------|-------------|
| 1) | Service Level  | 16,000 lbs. |
| 2) | Fatigue Level  | 12,000 lbs. |
| 3) | Collapse Level | 24,000 lbs. |
- d. A minimum horizontal force of +/-20% of Service Level vertical loads and +/-10% of Fatigue Level vertical loads shall be applied in combination with the respective vertical loads to account for vehicle de-acceleration effects.
3. Structural Requirements:
- a. Plate system shall remain within elastic range under service level and fatigue level loading.
- b. Plate system is allowed to become inelastic for maximum joint opening, including seismic movement under seismic loading.
- c. Limit plate deflection to 0.070" under service loading and to 0.035" under fatigue loading at maximum opening, excluding seismic movement.
- d. Nonlinear analysis may be used for collapse load level analysis.
- e. Fatigue resistance shall be established using the mean SN curve and Endurance Limit of 0.5 x Ultimate Strength for the material. Stress risers (recesses, bolt holes, etc.) shall be accounted for in fatigue analysis. They are not required to be considered for service or collapse load level analyses. Analysis shall show that stresses are in keeping with design limit criteria.
4. Design system such that plate remains in place and viable during and after a seismic event.
5. Centering Bars: If used shall be cast aluminum or stainless steel with allowance to rotate on ends and centering bolt connection with coil spring tensioners or torque installed bolts per manufacturer design. Spacing shall be as required per manufacturer's system design, but no greater than 18 inches on center.
6. Impact sound dampeners: If used shall be internally mounted or an encapsulated plate. Shore hardness of 70 according to ASTM D-2240. There shall be no metal impact noises during vehicular movement.
- B. Seismic Cover Plate Systems, aluminum and stainless steel plates that reseal after a seismic event with minimum/maximum blockout dimensions indicated in drawings:
1. Iso-Flex Xtreme Joint System "XR" Seismic Expansion Joint, LymTal.
  2. Seismic Span II with Safety Flex Cover Plate System, SSF Series, WBA.
- C. Substitutions: None for this project. Contact Project Manager for consideration for future projects.

**2.6 PRODUCTS, OTHER**

- A. Horizontal and Vertical seismic system sealants:
1. Wabo® WeatherSeam, WBA.
  2. Iso-Flex "VS" Series Wall Syst., LymTal.

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- B. Horizontal compression joint sealants:
  - 1. Iso-Flex Compression Seal, LymTal.
  - 2. Wabo<sup>®</sup> Compression Seal, WBA.
- C. Secondary Moisture Containment System, Precompressed Hydrophobic modified polymer sealant compound:
  - 1. Iso-Flex Precom “H-PS”, LymTal.
  - 2. Wabo HSeal, WBA.
- D. Substitutions: **None** for this project. Contact Project Manager for consideration for future projects.

**PART 3 - EXECUTION****3.1 EXAMINATION**

- A. Examine surfaces **and blockouts** where expansion joint systems will be installed for installation tolerances and other conditions affecting performance of Work.
- B. Check elevations on each side of expansion joint gap to ensure flush slab-to-slab transition.
- C. Check anticipated or actual minimum and maximum joint openings. Compare to manufacturer's movement specifications and make joint sizing recommendations.
- D. Coordinate and verify that related Work meets following requirements:
  - 1. Check adhesion to substrates and recommend appropriate preparatory measures.
  - 2. Curing compounds used on concrete surfaces are compatible with Work to be installed.
  - 3. Concrete surfaces have completed proper curing period for system selected.
  - 4. Coordinate expansion joint system with other related Work before installation of expansion joint.
  - 5. Verify expansion joints are compatible with Joint Sealants and traffic toppings.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.
- F. Cease installation if expansion joint blockouts and/or openings exhibit cracked edges, voids or spalls. Repair with approved material prior to installation of expansion joint.
- G. Correct unsatisfactory conditions in manner acceptable to Manufacturer and Project Manager before installing joint system.



**3.2 PREPARATION**

- A. Prepare for installation of expansion joint systems in accordance with manufacturer's recommendations
- B. Surface Preparation:
  - 1. Acid etching: Prohibited.
  - 2. Prepare substrates according to joint system manufacturer's written instructions.
  - 3. Clean joints thoroughly in accordance with manufacturer's instructions to remove all laitance, unsound concrete and curing compounds which may interfere with adhesion.

**3.3 INSTALLATION**

- A. Comply with manufacturer's written instructions for storing, handling, and installing joint assemblies and materials unless more stringent requirements are indicated.
- B. Proceed with work only when existing and forecast weather and temperature of concrete substrate will permit work in accordance with manufacturer's recommendations.
- C. Cease material installation under adverse weather conditions, or when temperatures are outside manufacturers recommended limitations for installation, or when temperature of work area or substrate are below 40°F.
- D. During months when historic mean daily temperature at Project is more than 19° F. colder than annual mean daily temperature, premolded sealant shall be installed on temporary basis to prevent hot weather buckling. Provide permanent installation during acceptable weather conditions.
- E. Terminate exposed ends of joint assemblies with field- or factory-fabricated termination devices.
- F. Seal all openings to occupied spaces to prevent cleaning materials, solvents and fumes from infiltration. All protective measures and/or ventilating systems required to prevent infiltration are incidental to this Work.
- G. Clean off excess material and material smears adjacent to joints as work progresses using methods and materials approved by manufacturer.

**3.4 FIELD QUALITY CONTROL**

- A. Field Tests and Inspections: Prior to opening to traffic, test joint seal for leaks by maintaining continuously wet for 4 hours. Repair leaks revealed by examination of seal underside. Repeat test and repairs until all leaks stopped for full 4 hours.
- B. Manufacturer Services: Provide qualified manufacturer's technical representative for periodic inspection of Work at critical time of the installation, including but not limited to pre-concrete formwork and placement site meetings, block out inspection, surface defect repair, surface preparation, metal work, expansion gland installation and waterproofing system installation.

### 3.5 PROTECTION

- A. Do not remove protective covering until finish work in adjacent areas is complete. When protective covering is removed, clean exposed metal surfaces to comply with manufacturer's written instructions.
- B. Protect installation from damage by work of other Sections. Where necessary due to heavy construction traffic, remove and properly store cover plates or seals and install temporary protection over joints. Reinstall cover plates or seals prior to Substantial Completion of Work.

### END OF SECTION 079500

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## SECTION 099120 - PAVEMENT MARKING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Include, but are not limited to, the Contract Drawings, Construction Contract General Conditions and Special Conditions. For a complete list of the Contract Documents, please refer to Article I of Contract.

#### 1.2 SUMMARY

- A. This Section includes surface preparation and application of paint systems for the high build, two coat systems for the items of types, patterns, sizes, and colors described in this article.
- B. Provide the following systems as shown on Drawings:
  - 1. Roadways lane stripping.
  - 2. Parking Stall Stripes.
  - 3. Traffic Arrows, crosswalks, accessible stall access aisles, walkways, symbols, stop bars, words and other markings.
  - 4. International Symbol of Accessibility.
- C. Provide painting of curbs and curb ramps as described in the following paragraphs:
  - 1. Paint vertical surface and the first 6 in. of the abutting horizontal surface at the top of all curbs and islands (including PARCS equipment islands) within parking facility except those which do not exceed 3'0" in width and abut a wall, spandrel panel, bumper wall guardrail or other construction (not including landscaping or equipment) which prevents passage of pedestrians.
  - 2. In parking areas and/or at streets and sidewalks within the project limits or constructed as part of this project, paint curb ramps (including flares), curb returns at curb ramps and any projecting elements at edges of accessible ramps without handrails. Paint curb returns at driveways and paint curb minimum of 3 ft either side of curb ramp or driveway, (or curb ramp flare length, whichever is greater) in accordance with Pavement Marking.
  - 3. Paint color for curbs and curb ramps shall be yellow.
- D. International Symbol of Accessibility proportions shall be as shown in ANSI A117.1-1992 and Americans with Disabilities Act (ADA) Accessibility Guidelines - 1991.
- E. Related Work:
  - 1. Pavement Marking Contractor shall verify compatibility with sealers, joint sealants, caulking and all other surface treatments as specified in Division 07.

### 1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Provide product data as follows:
  - 1. Manufacturer's certification that the material complies with:
    - a. Federal specifications where required in this Section.
    - b. Acceptance by State and/or Local DOT for use on roads in vicinity of project where not required to meet a Federal Specification herein.
  - 2. Intended paint use.
  - 3. Pigment type and content.
  - 4. Vehicle type and content.
- C. Submit list of similar projects (minimum of 5) where pavement-marking paint has been in use for a period of not less than 2 yrs.

### 1.4 PROJECT CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

### 1.5 QUALITY ASSURANCE

- A. Provide written 1 year warranty to Project Manager that pavement markings will be free of defects due to workmanship, inadequate surface preparation, and materials including, but not limited to, fading and/or loss of markings due to abrasion, peeling, bubbling and/or delamination. Excessive delamination, peeling, bubbling or abrasion loss shall be defined as more than 15% loss of marking material within one year of substantial completion and/or occupancy of the parking area. With no additional cost to Project Manager, repair and/or recoat all pavement marking where defects develop or appear during warranty period and all damage to other Work due to such defects.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Pavement marking materials shall meet Federal, State and Local environmental standards.
- B. Paint shall be manufactured and formulated from first grade raw materials and shall be free from defects or imperfections that might adversely affect product serviceability.

- C. Paints shall comply with the National Organic Compound Emission Standards for Architectural Coatings, Environmental Protection Agency, 40 CFR Part 59 (1998).
- D. The product shall not contain mercury, lead, hexavalent chromium, or halogenated solvents.
- E. Pavement marking materials shall have a static coefficient of friction equal to 0.8 for markings on accessible ramps, curbs and curb ramps and a static coefficient of friction equal to 0.6 for all other markings. Silica sand and/or glass beads may be used to achieve the required coefficient of friction, in accordance with manufacturer's recommendations.

## 2.2 ACCEPTABLE PAVEMENT MARKING PAINTS:

- A. Water-borne 100% acrylic paint shall be used for white and yellow pavement markings and shall meet requirements of Federal Specification TT-P-1952E.
  - 1. All latex paint products shall have performance requirements of Type I and II of Federal Standard TT-P-1952E.
  - 2. Water-borne paint for special color pavement markings (blue, green, red, black) shall meet requirements of Federal Specification TT-P-1952E. Special color marking materials shall be compatible with the white and yellow pavement markings where they are layered.
  - 3. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Setfast Acrylic Waterborne Traffic Marking Paint, TM 226, TM 227; by Sherwin Williams Company.
    - b. Setfast Low VOC Acrylic Traffic Marking Paint, TM 5626, TM 5627; by Sherwin Williams Company.

## 2.3 COLOR OF PAINT

- A. Color of paint unless noted otherwise on Contract Drawings, shall be white and shall match federal color chip 37925 and daylight directional reflectance (without glass beads) shall not be less than 84% (relative to magnesium oxide) when tested in accordance with Federal Test Method Standard 141, Method 6121.
- B. Color of paint, unless noted otherwise on Contract Drawings, shall be yellow and shall match federal color chip No. 33538. Color shall have daylight directional reflectance (without glass beads) of not less than 50% (relative to magnesium oxide) when tested in accordance with Federal Test Method Standard 141, Method 6121.
- C. Paint color for traffic yellow, where shown on Contract Drawings or specified herein, shall match federal color chip No. 33538 commonly referred to as federal highway yellow. Color shall have daylight directional reflectance (without glass beads) of not less than 50% (relative to magnesium oxide) when tested in accordance with Federal Test Method Standard 141, Method 6121.
- D. Paint color for blue accessible parking space pavement markings, if shown on Contract Drawings, shall match federal color chip No. 35180. Color shall have daylight directional

reflectance (without glass beads) of not less than 52% (relative to magnesium oxide) when tested in accordance with Federal Test Method Standard 141, Method 6121.

- E. Paint color for green special-use parking space pavement markings, if shown on Contract Drawings, shall match federal color chip No. 34108. Color shall have daylight directional reflectance (without glass beads) of not less than 52% (relative to magnesium oxide) when tested in accordance with Federal Test Method Standard 141, Method 6121.
- F. Paint color for red special-use parking space pavement markings, if shown on Contract Drawings, shall match federal color chip No. 31136. Color shall have daylight directional reflectance (without glass beads) of not less than 52% (relative to magnesium oxide) when tested in accordance with Federal Test Method Standard 141, Method 6121.
- G. Paint color for black special-use pavement markings, if shown on Contract Drawings, shall match federal color chip No. 37038. Black paint shall also meet Federal Specification TT-P-110.

## **2.4 BEADS**

- A. Beads (Glass Spheres) shall be used in all pavement markings except stall striping lines and shall conform to Federal Specification TT-B-1325, Type I. Test for bead adhesion shall be conducted in accordance with Federal Specification TT-P-850 Section 4.3.6 excepting Section 4.3.6.2.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
- B. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- C. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
  - 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.
- D. Striping shall not be placed until full cure of concrete slab and sealer. Concrete surfaces generally require 30 to 90 days @ 70°F or higher. Silane sealers require 24 hrs @ 70°F or higher.

### 3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Do not paint or finish any surface that is wet or damp.
- C. Clean substrates of substances that could impair bond of paints, including dirt, dust, oil, grease, and incompatible paints and encapsulants.
- D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- E. Lay out all striping on each tier, using dimensions and details shown on Contract Drawings, before painting that tier. Report any discrepancies, interferences or changes in striping due to field conditions to Project Manager prior to painting. Pavement Marking Contractor shall be required to remove paint, repair surface treatment and repaint stripes not applied in strict accordance with Contract Drawings.
- F. Where existing painted pavement markings and/or stripes conflict with new striping layout or must be removed due to installation which does not conform to contract requirements, remove existing paint markings, using care to avoid scarring substrate surface.
  - 1. Concrete and asphalt surfaces: Material shall be removed by methods acceptable to Project Manager and cause as little damage as possible to surface texture of pavement. Methods, that can provide acceptable results, are grinding and air or shot blasting. Use of chemicals to remove pavement markings prohibited. Collect residue generated by removal of pavement markings and dispose of as required by all applicable laws and regulations. If grinding is used, lightly grind floor surface using wheel mounted floor grinder or similar equipment with positive elevation control of grinder head. For all removal techniques: On test area, demonstrate to Project Manager acceptable removal of paint material and control of paint removal equipment to prevent substrate scarring.
  - 2. Traffic Topping/Membrane surfaces: Remove existing pavement markings by solvent washing or high-pressure water washing. Submit letter from traffic topping/membrane manufacturer certifying that solvents and/or water pressures are acceptable for this use and will not damage material. On test area, demonstrate to Project Manager acceptable removal of paint material and control of paint removal equipment to prevent substrate scarring.
  - 3. Contractor shall not use paint, bituminous bond coat or other methods of covering markings to obliterate existing pavement markings.
  - 4. Material deposited on pavement as a result of removal shall be removed as work progresses. Accumulation of material, that might interfere with drainage or might constitute a hazard to traffic, prohibited.
  - 5. Curing compounds on new concrete surfaces (less than 1 yr old) shall be removed per existing pavement marking removal requirements prior to installation of new pavement markings.
- G. Work Areas:
  - 1. Store, mix and prepare paints only in areas designated by Contractor for that purpose.

2. Provide clean cans and buckets required for mixing paints and for receiving rags and other waste materials associated with painting. Clean buckets regularly. At close of each day's Work, remove used rags and other waste materials associated with painting.
3. Take precautions to prevent fire in or around painting materials. Provide and maintain appropriate hand fire extinguisher near paint storage and mixing area.

H. Mixing:

1. Do not intermix materials of different character or different manufacturer.
2. Do not thin material except as recommended by manufacturer.

I. Disposal:

1. Contractor shall properly dispose of unused materials and containers in compliance with Federal Resource Conservation Recovery Act (RCRA) of 1976 as amended, and all other applicable laws and regulations.

### **3.3 APPLICATION**

- A. Apply paint in 2-coat system; first coat shall be 50% of total 15 wet mil minimum thickness, not to exceed 8 mils. First coat shall be cured prior to installation of second coat. At Contractor's option, one coat may be applied before substantial completion, with a second coat delayed for 3-6 months until weather conditions are appropriate and the concrete has cured sufficiently for proper adhesion.
1. Two coat system total wet mil thickness of 0.015 in (0.381 mm).
- B. Apply painting and finishing materials in accordance with manufacturer's directions. Use applications and techniques best suited for material and surfaces to which applied. Minimum air shall be used to prevent overspray. Temperature during application shall be minimum of 40° F and rising, unless manufacturer requires higher minimum temperature. Maximum relative humidity shall be as required by manufacturer.
- C. Application of beads and/or silica sand shall coincide with application of paint, but shall be done as separate operation by a suitable dispenser. Glass beads and silica sand shall adhere to the cured paint or all marking operations shall cease until corrections are made.
- D. All lines shall be straight, true, and sharp without fuzzy edges, overspray or non-uniform application. Corners shall be at right angles, unless shown otherwise, with no overlaps. Line width shall be uniform (-0%, +5% from specified width). No excessive humping (more material in middle than at edges or vice versa).

### **END OF SECTION 099120**

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## SECTION 099123 – PAINTING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Include, but are not limited to, the contract Drawings, Construction Contract General Conditions, and Special Conditions. For a complete list of the Contract Documents, please refer to Article I of Contract.

#### 1.2 SUMMARY

- A. This Section includes surface preparation and field painting of the following:
  - 1. Stand pipes, storm drainage piping, hangers, support, impact guards and other plumbing related accessories.
  - 2. Column/spandrel connections.
  - 3. Concrete Surfaces- Inverted tee beams, columns, column bases and canopy bases.
  - 4. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.
- B. Related Sections include the following:
  - 1. Division 9 Section "Pavement Markings".
  - 2. Divisions 15: "Basic Mechanical Requirements".

#### 1.3 DEFINITIONS

- A. Standard terms used by the coatings industry are defined in ASTM D16.
- B. General: Standard coating terms defined in ASTM D 16 apply to this Section.
  - 1. Semi-gloss refers to medium-sheen finish with a gloss range between 30 and 65 when measured at a 60° meter.

#### 1.4 SUBMITTALS

- A. All submittals shall comply with requirements of Technical Specification Section 01300 and Technical Specification Section 01340 for submittal requirements.
- B. Product Data: For each paint system specified. Include primers.

1. Material List: Provide an inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
  2. Manufacturer's Information: Provide manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material proposed for use.
  3. Certification by the manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs).
- C. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for each type of finish-coat material indicated.
1. Ferrous Metal: Provide 2 4-in.- sq samples of flat metal and 2 8-in.- long samples of solid metal for each color and finish
  2. Colors are to match existing surfaces and require approval by the Project Manager.
- D. Qualification Data: For firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience.

## 1.5 QUALITY ASSURANCE

- A. Applicator Qualifications: Engage an experienced applicator who has completed painting system applications similar in material and extent to that indicated for this Project with a record of successful in-service performance.
- B. Source Limitations: Obtain primers and undercoat materials for each coating system from the same manufacturer as the finish coats.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the Project Site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label, and the following information:
1. Product name or title of material.
  2. Product description (generic classification or binder type).
  3. Manufacturer's stock number and date of manufacture.
  4. Contents by volume, for pigment and vehicle constituents.
  5. Thinning instructions.
  6. Application instructions.
  7. Color name and number.
  8. VOC content.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45° F. Maintain containers used in storage in a clean condition, free of foreign materials and residue.
1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

## 1.7 PROJECT CONDITIONS

- A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 and 90° F.
- B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 and 95° F.
- C. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85%; or at temperatures less than 5° F above the dew point; or to damp or wet surfaces.
- D. Paint at air temperatures between 50°F to 90°F, or at manufacturer's recommendation if they are more restrictive.
  - 1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products in the paint schedules.
- B. Manufacturers Names: The following manufacturers are referred to in the paint schedules by use of shortened versions of their names, which are shown in parentheses.
  - 1. Sherwin-Williams Co. (S-W).
  - 2. Tnemec Company Inc. (Tnemec)

### 2.2 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide fillers, primers, undercoats, and finish-coat materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified. Paint-material containers not displaying manufacturer's product identification will not be acceptable.
- C. Colors: Provide custom colors of the finished paint systems to match the existing surfaces to be painted, final color selections made by Project Manager.

**PART 3 - EXECUTION****3.1 EXAMINATION**

- A. Examine substrates, areas, and conditions, with the Applicator present, under which painting will be performed for compliance with paint application requirements.
  - 1. Do not begin to apply paint until unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
  - 2. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.
  
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
  - 1. Notify Project Manager about anticipated problems using the materials specified over substrates primed by others.

**3.2 PREPARATION**

- A. General: Remove hardware and hardware accessories, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible, provide surface-applied protection before surface preparation and painting.
  - 1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
  
- B. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease before cleaning.
  - 1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
  
- C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
  - 1. Provide barrier coats over incompatible primers or remove and reprime.
  - 2. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with the Steel Structures Painting Council's (SSPC) recommendations.
  - 3. Ferrous Metals: Remove exposed rust conditions in accordance with the Steel Structures Painting Council's SSPC, level SP-3 recommendations.
  - 4. Concrete Surfaces: Contractor shall prepare all surfaces in accordance with SSPC-SP13 recommendations.
  - 5. Galvanized Surfaces: Need not be painted.
  
- D. Materials Preparation: Mix and prepare paint materials according to manufacturer's written instructions.

1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
3. Use only thinners approved by paint manufacturer and only within recommended limits.

### 3.3 APPLICATION

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
1. Galvanized materials do not need to be painted.
  2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
  3. Provide finish coats that are compatible with primers used.
  4. The number of coats and the film thickness required are the same regardless of application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
  5. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
  6. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.
- B. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Brushes: Use brushes best suited for the type of material applied. Use brush of appropriate size for the surface or item being painted.
  2. Rollers: Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.
  3. Spray Equipment: Use airless spray equipment with orifice size as recommended by the manufacturer for the material and texture required.
  4. The Contractor is responsible for providing all protective measures required to control spray dust within the boundary of the contract. The spray paint method used shall meet the requirements of all local and state environmental control agencies.
- C. Minimum Coating Thickness: Apply paint materials no thinner than manufacturers recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.
- D. Mechanical items to be painted include, but are not limited to, the following:
1. Piping, pipe hangers, and supports.
  2. Accessory items.

- E. Fillers: Apply epoxy fillers to concrete/steel and steel/steel interface to fill voids and unwelded overlaps.
- F. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn through or other defects due to insufficient sealing.
- G. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
- H. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

### 3.4 CLEANING

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from the site.
  - 1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.

### 3.5 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Project Manager.
- B. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.
  - 1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

### 3.6 PAINT SCHEDULE

- A. Ferrous Metal: Provide the following finish systems over ferrous metal.
  - 1. Precast Connection Components, Epoxy and Polyurethane Finish: A Finish coat over a rust-inhibitive primer.
    - a. Primer: Rust-inhibitive Polyamide/Modified Polyamidoamine Epoxy applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 3 mils.
      - 1) S-W: Macropoxy 646, H.S.

- 2) Tnemec: Chembuild Series 135.
  - b. Top Coat: Semi-gloss, exterior Polyester-Aliphatic Urethane/Aliphatic Acrylic Polyurethane applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 3 mils.
    - 1) S-W: Armorseal Floor-Thane.
    - 2) Tnemec Endura Shield Series 73.
2. Drainage Pipe and Pipe Components, Epoxy Primer and Finish.
    - a. Primer: Exterior, Polyamide/Modified Polyamidoamine Epoxy applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 3 mils.
      - 1) S-W: Macropoxy 646, H.S.
      - 2) Tnemec: Chembuild Series 135.
    - b. Top Coat: Semi-gloss, exterior, Polyamide/Modified Polyamidoamine Epoxy applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 3 mils.
      - 1) S-W: Macropoxy 646, H.S.
      - 2) Tnemec: Chembuild Series 135.
  3. Concrete Substrates, Nontraffic Surfaces:
    - a. Primer: Exterior, Polyamide/Modified Polyamidoamine Epoxy applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 3 mils.
      - 1) Prime Coat: S-W: Pro-Cryl Universal Primer, B66-310 Series
      - 2) Or approved equal
    - b. Intermediate Coat: Exterior latex matching topcoat.
      - 1) Sherwin Williams Sher-Crete, Flexible Waterproofer, A5 Series
      - 2) Or Project Managers approved equal
    - c. Top Coat: Semi-gloss, exterior Polyester-Aliphatic Urethane/Aliphatic Acrylic Polyurethane applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than 7 mils.
      - 1) Sherwin Williams Sher-Crete, Flexible Waterproofer, A5 Series
      - 2) Or Project Managers approved equal

**END OF SECTION 099123**

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**SECTION 220500 - COMMON WORK RESULTS FOR PLUMBING****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Include, but are not limited to, the Contract Drawings, Construction Contract General Conditions and Special Conditions. For a complete list of the Contract Documents, please refer to Article I of Contract.
- B. References:
1. American National Standards Institute (ANSI):
  2. National Standard Plumbing Code (NAPHCC):
  3. American Society for Testing and Materials (ASTM):
    - a. ASTM A74, "Specification for Cast Iron Soil Pipe and Fittings".
    - b. ASTM A120, "Specification for Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Ordinary Use".
    - c. ASTM A234, "Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures".
    - d. ASTM B88, "Specification for Seamless Copper Water Tube".
    - e. ASTM C76, "Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe".
    - f. ASTM C700, "Specification for Extra Strength and Standard Strength Clay Pipe and Perforated Clay Pipe".
    - g. ASTM D3034, "Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings".

**1.2 SUMMARY**

- A. This Section includes general administrative and procedural requirements for mechanical installations. Following administrative and procedural requirements are included in this Section to expand the requirements specified in Division 01:
1. Submittals.
  2. Coordination/Scheduling/Quality Assurance.
  3. Record documents.
  4. Maintenance manuals.
  5. Cutting and patching.
  6. Testing/Guarantee
  7. Piping materials and installation common to most piping systems.
  8. Fittings and Joints.
  9. Floor and Trench Drains
  10. Labeling & Identifying.
  11. Touch up painting and finishing.
  12. Cutting and patching.
- B. Definitions:



1. Term "Contractor" used throughout Division 22 shall mean Mechanical Subcontractor.
2. Term "provide" shall mean to furnish all necessary labor, materials, equipment, accessories, transportation, services, installation and adjustment under Contract amount, including Contractor's profit, overhead and payment of all taxes and fees.

### **1.3 SUBMITTALS**

- A. General: Follow the procedures specified in Section 01300 "Submittals" and as specified in this Section.
- B. Shop Drawings and Catalog Sheets. Include:
  1. Floor drains.
  2. Expansion joints for plumbing lines.
  3. Support material and hardware.
- C. Substitutions:
  1. Products are referenced in Specification and on Drawings to establish standard of quality, style, design, and function of materials, equipment, apparatus, or product.
  2. There are often several satisfactory substitutes for standardized utilitarian items which satisfy design objectives.
  3. Since it is impractical to name all possible brands that might be furnished, substitutes may be proposed unless specifically stated otherwise.
  4. Submit substitutions in accordance with Division 01 and General Conditions of Specification and as follows:
    - a. Submit proposed substitute material or equipment to be considered for approval as equivalent to Project Manager at least 7 days before time set for receiving Bids.
    - b. Contractor assumes all engineering and construction costs necessary for revision in Work due to substitute material or equipment.

### **1.4 COORDINATION / SCHEDULING / CODES AND STANDARDS**

- A. Coordination
  1. Visit site before Bidding to note apparent features which may affect Work. No subsequent allowance will be made because of failure to make this examination before Bidding.
  2. Verify all dimensions in field before ordering any material or doing any Work.
  3. Verify ceiling heights or other architectural and structural details before installing any piping.
  4. No extra compensation will be allowed because of differences between actual measurements and dimensions and those indicated on Drawings.
  5. Notify Project Manager in writing of any difference which may be found before proceeding with Work.
- B. Scheduling
  1. Schedule Work so as to coordinate with other Contractors.

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2. Before starting Work, prepare and submit to Prime Contractor schedule of operations outlining proposed order of procedure, giving dates of execution and estimated time required for completion of each step.
3. After schedule has been accepted by Prime Contractor and Project Manager, do not deviate from schedule without written consent of Prime Contractor.
4. No subsequent extras will be allowed for materials and labor not included by Bidder for Mechanical Work due to lack of familiarity with Contract Documents as they relate to Work of all other trades required for Project.

## C. Codes and Standards

1. Comply with:
  - a. American Welding Society (AWS).
  - b. American Society of Mechanical Engineers (ASME).
  - c. American National Standards Institute (ANSI).
  - d. American Society for Testing and Materials (ASTM).
  - e. American Insurance Association (A.I.A.).
  - f. National Fire Protection Association (NFPA).
  - g. Underwriters' Laboratories, Inc. (UL).
  - h. Manufacturer's Standardization Society of the Valve & Fittings Industry, Inc. (MSS).
  - i. Factory Mutual Research Corp. (FM).
  - j. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)
  - k. American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE)
2. All local, state, and federal rules and regulations.
  - a. International Building Code (IBC):
    - 1) IBC International Building Code.
    - 2) IBC International Mechanical Code.
    - 3) IBC International Plumbing Code.
    - 4) IBC International Fire Prevention Code.
3. Should any change in Drawings and Specifications be required to comply with local regulations, notify Project Manager at least 7 days before time set for receiving Bids. After entering into contract, Contractor will be held to complete all Work necessary to meet local requirements without extra expense to Owner.
4. Maintain a competent superintendent at Project throughout progress of Work and until Work is completed.

**1.5 RECORD DOCUMENTS**

- A. Prepare record documents in accordance with the requirements in Section 01720 "Contract Record Documents." In addition to the requirements specified in Division 01, indicate the following installed conditions:
  1. Approved substitutions, contract modifications, and actual equipment and materials installed.
  2. Contract modifications, actual equipment and materials installed.

**1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver products to the project properly identified with names, model numbers, types, grades, compliance labels, and other information needed for identification.
- B. Deliver materials to Project in good condition. Store materials off ground and protected from elements.

**PART 2 - PRODUCTS****2.1 FLOOR DRAINS AND PIPE**

- A. Floor Drains: Heavy duty cast-iron with coated, heavy duty, vandal-proof grate and sediment buckets. Size, connection type and additional options are as specified on Drawings.
  - 1. Acceptable Manufacturers:
    - a. Josam
    - b. Smith.
    - c. Wade.
    - d. Zurn.
  - 2. Basis-of-Design Product: Subject to compliance with requirements,
    - a. Zurn Model Z- 511: Zurn Plumbing Products Group

**2.2 PIPING SYSTEMS-COMMON REQUIREMENTS**

- A. General: Install piping as described below, except where system Sections specify otherwise.
- B. General Locations and Arrangements: Drawings (plans, schematics, and diagrams) indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated.
- C. Install all piping parallel to building walls and column lines at such height for proper drainage and so not to interfere with doorways, stairway or traffic.
- D. Install suspended pipes as close to ceiling as possible and at uniform grade.
- E. Where interferences develop in field, offset or reroute piping as required to clear such interferences. Use proper fittings, no bent pipe is permitted.
- F. Work pipe into place without springing
- G. Install all piping such that it will drain and vent as shown or required.

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- H. Provide uniform grade to all horizontal pipes and provide drains at all low points in water piping system.
- I. Install piping at indicated slope.
- J. Install piping free of sags and bends and neat in appearance.
- K. Install couplings according to manufacturer's printed instructions.
- L. Refer to equipment specifications in other Sections for roughing-in requirements.
- M. Piping Joint Construction: Join pipe and fittings as follows and as specifically required in individual piping system Sections.
  - 1. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
  - 2. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
  - 3. Soldered Joints: Construct joints according to AWS "Soldering Manual", Chapter 22 "The Soldering of Pipe and Tube".
  - 4. Brazed Joints: Construct joints according to AWS "Brazing Manual" in the "Pipe and Tube" Chapter.
  - 5. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full inside diameter. Join pipe fittings and valves as follows:
    - a. Note the internal length of threads in fittings or valve ends, and proximity of internal seat or wall, to determine how far pipe should be threaded into joint.
    - b. Apply appropriate tape or thread compound to external pipe threads (except where dry seal threading is specified).
    - c. Align threads at point of assembly.
    - d. Tighten joint with wrench. Apply wrench to valve end into which pipe is being threaded.
    - e. Damaged Threads: Do not use pipe or pipe fittings having threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.
- N. All piping routed over finished areas must be insulated.

**2.3 HANGER AND SUPPORT INSTALLATION:**

- A. Support piping in building on standard clevis type (MSS SP-69, No. 1) hangers, with adjustable rods.
- B. Properly support all piping installed on suitable pipe hangers and supports. Permanent hangers, supports, and anchors shall be fabricated from durable materials, hot dipped galvanized or stainless steel, suitable for service conditions in accordance with details on Drawings.
- C. Base required strength of all supporting equipment on combined weight of piping filled with water, plus any insulating covering.
- D. Install hangers for horizontal piping with following minimum rod sizes:

<u>Nominal Pipe Size</u>	<u>Minimum Rod Size</u>
0.75 in. to 2 in. pipe	0.375 in.
2.5 in. to 3.5 in. pipe	0.5 in.
4 in. to 5 in. pipe	0.625 in.
6 in. pipe	0.75 in.
8 in. to 12 in. pipe	0.875 in.

- E. Provide and install anchors in piping system to fix direction of expansion and contraction. Fabricate and assemble anchors to secure desired points of piping in relatively fixed positions. Hangers shall permit line to take up expansion and contraction freely in opposite directions away from anchored point and shall be so arranged as to be structurally suitable for particular location, line, and loading conditions in question.
- F. Use expansion anchors to anchor pipe hanger and supports where inserts have been improperly located, or where necessary to support piping from existing concrete construction. Provide expansion anchors equal to Ackerman-Johnson, Paine, Phillips, Hilti, ITW Ramset/Red Head, or Rawl. Expansion anchor locations must have approval of Project Manager before installation. Coordinate location with structural.
- G. Support parallel pipe lines at same level on approved trapeze or saddle type hangers.
- H. Use steel rods to attach ring or trapeze hangers to building structure. Space hangers at sufficiently close intervals to support piping and its contents, 12 ft on center maximum for threaded pipes.
- I. Support copper piping with copper clevis hangers, or clevis hanger with copper supporting loop.
- J. Provide sheet metal collar at each pipe hanger for insulated pipe with vapor barrier.
- K. Any support hardware or material that is cut, scratched or treaded shall be coated with a zinc rich coating (ZRC or equivalent) at these locations.

**2.4 CUTTING AND PATCHING**

- A. General: Perform cutting and patching in accordance with Construction Contract General Conditions and the following requirements:
  - 1. Protection of Installed Work: During cutting and patching operations, protect adjacent installations.
  - 2. Perform cutting, fitting, and patching of mechanical equipment and materials required to:
    - a. Uncover Work to provide for installation of improperly scheduled Work.
    - b. Remove and replace defective Work.
    - c. Remove and replace Work not conforming to requirements of the Contract Documents.
    - d. Remove samples of installed Work as specified for testing.
    - e. Install equipment and materials in structures.
    - f. Upon written instructions from the Project Manager, uncover and restore Work to provide for Project Manager observation of concealed Work.

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- B. Cut, remove and legally dispose of selected mechanical equipment, components, and materials as indicated, including but not limited to removal of mechanical piping, heating units, and trim, and other mechanical items made obsolete by the new Work.
1. Protect the structure, furnishings, finishes, and adjacent materials not indicated or scheduled to be removed.
  2. Provide and maintain temporary partitions or dust barriers adequate to prevent the spread of dust and dirt to adjacent areas.
  3. Patch finished surfaces and building components using new materials specified for the original installation and experienced Installers. Installers' qualifications refer to the materials and methods required for the surface and building components being patched.
    - a. Refer to Division 01 Section "Reference Standards and Definitions" for definition of "experienced Installer".
  4. Respective trades will provide openings in floors, walls, and other members as required for installation of piping and equipment, provided that necessary information regarding such openings is furnished by contractor in timely manner.
  5. If contractor fails to provide information regarding required openings, cutting and repairing of completed Work will be performed by respective trades at expense of contractor.
  6. Seal all such openings in accordance with Division 07 Section 079233 "Concrete Joint Sealants."
  7. Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces necessary for mechanical installations only with written approval of Project Manager. Perform cutting by skilled mechanics of the trades involved.
  8. Repair cut surfaces to match adjacent surfaces.

**2.5 LABELING AND IDENTIFYING**

- A. Piping Systems: Install pipe markers on each system. Include arrows showing normal direction of flow.
1. Stenciled Markers: Complying with ASME A13.1.
  2. Locate pipe markers wherever piping is exposed in finished spaces, machine rooms, accessible maintenance spaces (shafts, tunnels, plenums), and exposed exterior locations as follows:
    - a. Near each valve and control device.
    - b. Near each branch, excluding short take-offs for fixtures and terminal units. Mark each pipe at branch, where flow pattern is not obvious.
    - c. Near locations where pipes pass through walls, floors, ceilings, or enter inaccessible enclosures.
    - d. At access doors, manholes, and similar access points that permit view of concealed piping.
    - e. Near major equipment items and other points of origination and termination.
    - f. Spaced at a maximum of 50 ft (15m) intervals along each run. Reduce intervals to 25 ft (7.6 m) in congested areas of piping and equipment.
- B. Adjusting: Relocate identifying devices which become visually blocked by work of this Division or other Divisions.

**2.6 PAINTING AND FINISHING**

Refer to Division 09 Section 099123 "Painting" for field painting requirements.

- A. Damage and Touch Up: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

**2.7 TESTING AND GUARANTEE**

- A. Testing:

1. Take out all necessary permits, arrange for all required inspections, and pay all fees and expenses associated with performing Mechanical Work.
2. Test all piping systems at full operating pressure under normal conditions of use in accordance with requirements of Water Department, Board of Health, Fire Department, and all other authorities having jurisdiction. As a minimum, the standpipe system shall be tested at 225 psi for 2 hrs.
3. Provide all instruments for making tests.
4. Perform tests on following systems:
  - a. Standpipe System.
5. Test all parts of system in presence of Contractor, Project Manager, Project Manager and Authority having jurisdiction for sufficient period of time to permit complete examination and inspection.
6. Successfully test all concealed piping before its being permanently covered up.
7. Remedy all defects in materials or workmanship which appear during test or retest of system.

- B. Guarantee:

1. In addition to any specific guarantee called for by Specifications, furnish to Owner written guarantee against defects in materials, workmanship for all apparatus and materials furnished, and for entire workmanship of installation for period of 1 yr from date of acceptance of Work.
2. During guarantee period and without expense to Owner, repair all defects in workmanship or material provided under this Section.

**END OF SECTION 220500**

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**ON-CALL CONST SERVICES 2012-13 TERMINAL ROADWAY AND GARAGE REPAIRS**

**TECHNICAL SPECIFICATIONS**

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## DIVISION 1 – GENERAL REQUIREMENTS

### SECTION 01010

#### SUMMARY OF WORK

#### PART 1 - GENERAL

##### 1.01 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 but not limited to incidental items and unit price items.

The work includes but is not limited to, work to improve the service life of the Terminal Roadway structures and parking structures by protecting the existing structure from moisture and de-icer chemicals. The work includes, but is not limited to, removing and replacing the concrete that is in poor condition, removing and replacing the building/roadway expansion joints, resealing horizontal and vertical surfaces to improve their resistance to moisture, resealing joints, improving the shear connections between the concrete floor panels, and other associated work. The work will be scheduled for night work and phased to limit the impact to the Public, the Airlines, DIA Ground Transportation, DIA Terminal Operations, and any other DIA or DIA related operation including but not limited to baggage operations, systems and areas.

This project will include, but not be limited to work on levels 3, 4, 5 and 6 of the Terminal Roadway and Parking Structure. The Task #1 for this project will primarily focus on the east terminal roadways levels 4, 5 and 6 with work also required under level 4. The work on level 4 requires access to level 3 which is inside the terminal building. This access will require security badges for all workers and will require special coordination with the airline and TSA users of the level 3 area. The work of this project will require phasing that will limit the areas where the contractor can work at any time. The phasing will also require the contractor to work on levels 4, 5 and 6 above and below each other in one phase. The work of this contract will require the contractor to maintain customer and tenant usage of the area at all times. The details of the allowable closures shall be closely coordinated with and must be approved by all of the affected DIA users and/or affected DIA departments.

The DIA terminal and parking structure consists of Modules or mods, located on the East and West sides of the Main Terminal Building. The east side has three mods and the west has four mods. Each mod has 6 levels adjacent to the terminal. The top three levels 6, 5 and 4 are the roadway access to the terminal. There are also 5 levels of parking immediately attached to these roadway structures. Portions of the level 3 parking areas were converted into airline baggage handling areas.

The Terminal Roadway structures are largely precast, prestressed concrete construction with concrete field topping. The parking structure is precast prestressed concrete with largely pretopped concrete decks. The Work specified in this contract consists of furnishing all management, supervision, coordination and scheduling efforts, labor, materials, tools, equipment, services, testing and incidentals for completion of the work as required by the Contract Documents.

- B. The Work in this Contract shall provide all required efforts to minimize the impact of this contract on ALL of the operations of Denver International Airport. The Contractor shall bid, plan and execute the Work so as to minimize disruption of operations and inconvenience to the public.

#### 1.02 WORK BY OTHERS

- A. The Contractor is hereby notified that there will be other construction activities now and in the future within the project areas and adjacent to the worksites throughout the duration of this contract. The Contractor is responsible for keeping apprised of other projects and worksites and how they may affect the work.
- B. The Contractor shall maintain contact with the City and with other contractors to schedule work to minimize the effect of such construction activities on other site activities. The Contractor shall also maintain, at the direction of the Project Manager, contact with tenants to ensure minimal disruption to tenant operations.

#### 1.03 FUTURE WORK

- A. A. The Contractor is hereby notified that there will be other future construction activities within the project site and adjacent to the worksites that are started after the start of this contract. It is the Contractor's responsibility to keep apprised of such projects and how they may affect the Work.

#### 1.04 SITE CONDITIONS

- A. The Contractor acknowledges satisfaction as to the nature and location of the Work, all of the general and local conditions, particularly those bearing upon availability of transportation, access to the site, disposal, handling and storage of materials, availability of labor, water, power, roads, and uncertainties of weather, or similar physical conditions at the site, the conformation and conditions of the ground, the character of equipment and facilities needed preliminary to and during the work, and all other matters that can in any way affect the work or the cost thereof under this contract.
- B. The Contractor further acknowledges, by submission of the bid satisfaction as to the character, quality and quantity of all surface and subsurface materials and all features on top of the surface or at worksites that would be encountered from his inspection of the site and from reviewing available records of exploratory work furnished by the City. Failure by the Contractor to become acquainted with the physical conditions of the sites and all the available information will not relieve the Contractor from responsibility for properly estimating the difficulty or cost of performing the Work.
- C. The Contractor warrants that as a result of examination and investigation of all the aforesaid data and the site, that the Contractor can perform the Work in a good and workmanlike manner and to the satisfaction of the City. The City assumes no responsibility for any representations made by any of its officers or agents during or prior to the execution of this contract unless such representation is expressly stated in the contract.

### PART 2 - PRODUCTS (NOT USED)

### PART 3 - EXECUTION

### 3.01 CONTRACTOR'S DUTIES

- A. Except as otherwise specified, furnish the following to the full extent required by the contract:
  - 1. Labor, superintendence, supervision and products.
  - 2. Construction equipment, tools, machinery and materials.
  - 3. Utilities required for construction and related activities.
  - 4. Other facilities and services necessary to properly execute and complete the Work, including security for worksite, testing and storage and protection of all materials awaiting incorporation into the Work, providing a safe working environment for workers, City and County of Denver representatives, and the public in accordance with all local, state and federal requirements.
  
- B. Prosecute the Work as specified and in a timely manner. Submit a schedule of Work. Submit a schedule for any work that is to be performed at times other than the standard project work schedule. The work schedule for this project shall be generally between the hours of 9:00 pm to 4:30 am. Monday through Friday. Due to the requirement to maintain safe use and operation of the work areas that must be reopened to the public on a daily basis, it may be required for the Contractor to have some staff available during the day to correct any deficiencies in the traffic control plan or to correct any safety concerns. The Contractor shall submit a schedule five working days prior to the beginning of Work to the Project Manager for review and acceptance. The Contractor shall obtain approval from the DIA Project Manager for changes to the approved work schedule. The Contractor shall provide all special tools and equipment necessary to provide safe operations for the construction work and for the maintenance of safe operations and use of the facility by the Public and by all DIA related activities.. These special tools or facilities shall include but not be limited to supplementary lighting of areas, availability of medical facilities, security precautions, dust control and noise control .

### 3.02 COORDINATION

- A. Coordinate prosecution 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 City 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 WORKSITE

- A. Confine worksite operations to areas permitted by law, ordinances, permits and the contract.

Confine worksite operations to only areas as approved in advance by the DIA Project Manager.

- B. Consider the safety of the Work and that of the people and property on and adjacent to the worksite when determining amount, location, movement and use of materials and equipment on worksite.
- C. Do not load worksite with equipment and products that would interfere with the Work or with the requirement to maintain use of the site by DIA. Only equipment, tools or materials required for this Work may be stored at the worksite.
- D. Protect products, equipment and materials stored on worksite.
- E. Relocate stored products, equipment and materials which interfere with operations of City, government bodies, public and private utilities, and 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 including any and all necessary relocations requested by the City. The cost of the work described in this section shall be included in the applicable multiplier or bid items contract price.

**END OF SECTION 01010**

## SECTION 01014

### WORK SEQUENCE AND CONSTRAINTS

#### PART 1 - GENERAL

##### 1.01 OTHER WORK

- A. Other concurrent construction contracts with which the Contractor must interface are described elsewhere in the Contract Documents. Refer to Technical Specifications Section 01310 and the Special Conditions for specific work constraints and milestones.

##### 1.02 WORK SEQUENCE

- A. The work sequence shall be in compliance 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 be in compliance with requirements indicated in the Special Conditions and Technical Specifications Section 01014 Work Sequence and Constraints. The requirements for the Construction Schedule are described in Technical Specifications Section 01310 Schedule.

##### 1.03 WORK SEQUENCE, PHASING (MILESTONES), CONSTRAINTS AND COORDINATION REQUIREMENTS

- A. The work of this contract is scheduled to start in March 2012 and all work shall be complete no later than November 1, 2012. The Contractor will be required as outlined in General Contract Conditions to provide all necessary extra supervision, labor and/or materials as may be required to complete the work in accordance with the schedule requirements. No adjustment of unit rates or additional costs for overhead will be considered for the Contractor to maintain the schedule requirements. DIA may consider an extension of this deadline by at most to November 15, 2012 only if the weather is permitting and if the contractor submits a cold weather protection plan that is accepted by the DIA Project Manager. There shall be no cause for claim against DIA should the NTP be delayed.

- B. The work is divided into Four Milestones follows:

Milestone 1 – The Contractor shall submit a complete construction schedule in the electronic format and in paper form and as required by Specification Section 01310 by no later than 7 days after NTP.

Milestone 2 – Mod 3 East Levels 4, 5 and 6. This Milestone must be complete no later than 80 days after Notice to Proceed for the Project.

Milestone 3 – Mod 2 East Levels 4, 5 and 6. This Milestone must be complete no later than 160 days after Notice to Proceed for the Project. Work within this Mod will require coordination and phasing of the work to keep the Short Term parking area open and usable at all times during the work in this area.

Milestone 4 – Mod 1 East Levels 4, 5 and 6. This Milestone shall be complete no later than 240 days after Notice to Proceed for the Project. Work within this Mod will require coordination and phasing of the work to keep the Valet Parking operation open and usable at all times during the work in this area.

- A. The work in this Task requires that that the Contractor shall work in the same Module and on Levels 3, 4, 5 and 6 at the same time. The work in this Task requires that the Contractor shall work at night. The work in this Task requires that the Contractor shall plan and schedule all work activities so to provide the minimum disruption to all DIA operations and use of the work areas. The Contractor shall follow the general outline for the work phases as provided in the construction drawings. The Contractor shall provide detailed plans and schedules to establish how the Contractor will plan the work and the local overnight closures to complete the work safely and maintain the required DIA operational requirements. The work in this Task requires the Contractor to provide extra coordination and phasing so that the Valet and Short Term Parking operations can remain in operation at all times The Contractor shall meet with the DIA Project Manager, DIA Operations, DIA Ground Transportation, DIA Parking Management and any other Company or organization as determined by the DIA Project Manager that will or may be affected by the work of this Contract to determine the needs of these entities. The Contractor shall then develop a detailed phased program, plan and schedule, to accommodate these needs while the work is being accomplished. The Contractor shall submit the plan to DIA for review, changes and acceptance. All plans whether accepted or not are subject to change as needed to address any unforeseen issue.

All scheduling of All Milestones and any special Phasing needs must be closely coordinated with the DIA Project Manager, all other affected DIA departments, the Airlines, the TSA and any other group affected by this work. DIA will consider adjustments to the schedule milestones if presented by the Contractor with justification and with demonstrated benefits to the owner and/or the project schedule. These adjustments are at the sole discretion of the DIA Project Manager.

- B. Due to the need to maintain uninterrupted operations of the Airport and the various affected parties, DIA requires that any or all of the work of this project be scheduled at night generally between the hours of 9 pm and 4:30 am. There will be no added cost for this requirement.
- C. Only one Module of the work can be under construction at a time. The Closure of the work areas must be coordinated in advance with the DIA Operations, DIA Ground Transportation, DIA Parking, Any affected Tenant or user and the DIA Project Manager. The Contractor shall prepare weekly Closure schedules and drawings to keep all parties aware of the status of the work. The Contractor shall submit System Shutdown Requests as required by the Contract and as directed by the DIA Project Manager.

Portions of the Public parking areas will require closure. The Contractor shall follow the following procedure. Two weeks before the proposed closure day the Contractor shall post closure signs on all drive aisles that enter the closure area. At one week before the closure date, the contractor shall block off the entrances into the closure area and only allow exiting traffic. The morning of the closure and start of work, the Contractor shall secure the area and remove all remaining customer cars (vehicles) from the work area. These vehicles shall be relocated to an adjacent unclosed parking area and the Contractor must complete a detailed tow record and post this record for use by the public and the Contractor shall submit same to the DIA Parking Office and the DIA Project Manager. The tow record and the relocation map shall be prepared by the Contractor, both sealed in plastic and posted by the Contractor at the entrances to all closed work areas as directed by the DIA Project Manager. The Contractor shall be responsible for any damage or complaints of damage or loss to the relocated vehicles. The Contractor shall contract with a professional towing service to conduct the vehicle relocation work.

- E. During the closures of the various areas the Contractor will be required to install traffic control barricades, pedestrian barricades and information signage to direct the Airport users (buses, automobiles and pedestrians) around the work site. These signs as outlined on the drawings and as required by the DIA Project Manager shall be included in the unit costs for the signage requirements as presented. Additional signage that is required to accomplish the contract requirement to maintain a safe and operating Terminal Roadway system is considered incidental and shall be included in the overall project costs. All signs must be fabricated and installed in a professional manner. The Contractor shall provide layout plan for each and every traffic control signage change. The plan shall include the proposed locations of the signs and detail drawings of the sign sizes, materials and messages for review and approval by the DIA Project Manager. All signage work shall be provided by a person qualified in the requirements of the MUTCD – Manual of Uniform Traffic Control Devices. This requirement is noted in specification 020010 – Work Items, item WI 1.5 Temporary Signage, incidental.

#### 1.04 WORK CONSTRAINTS

##### A. Site Constraints

1. Access to the project shall be generally via the Terminal Access Roads, both the public access and the Limited access roads for DIA authorized commercial vehicles and as indicated in the Contract Documents. Access shall be organized and planned by the Contractor to ensure no disruption of airline or DIA operations. All Contractor access plans are subject to review by the DIA Project Manager. ***A portion of the work area for this project is located within the Parking Revenue Control or the Ground Transportation Control area and another portion of the work is located within the fully secure terminal baggage handling area.***
2. Access to work sites will be strictly monitored and must comply with ***DIA Airport Operations, Parking, Ground Transportation, Security and FAA Regulations.*** The Contractor shall refer to Specification 01015 Security Requirements for employee badging requirements and to specification 01016 Vehicle and Equipment Permitting for vehicle permit requirements. Access to the Parking Revenue Control area while driving will require employee badge access and the Contractor shall be required to escort deliveries or services into and out of the Parking Revenue Control area.
3. The Contractor's staging area will be as indicated in the Construction Documents or as directed by the DIA Project Manager. Due to the constrained site conditions, the available staging areas will be limited and subject to change.
4. Contractor employee parking will not be allowed within the existing revenue control system or work zone. To access the Terminal building or the jobsite, Contractor employees may use the DIA Landside Employee Parking Lot located on 78th Avenue at a cost of \$36.00 per month per vehicle. A free DIA shuttle to the Terminal is available from this Lot. Employees must be badged to use this option and this option requires arrangements be made ahead of time with the DIA Parking Office. No construction materials or tools will be permitted on the employee buses.
5. The Contractor shall use the haul routes specified in the plans or as required or specified by the DIA Project Manager.
6. The Contractor may consider providing its own shuttle bus to transport the Contractor's employees between the contractor staging area and the work sites. This option is dependent on space available at the DIA South Contractor Staging area along 71<sup>st</sup> Avenue east of Jackson Gap Street. The availability of space at the Contractor Staging area cannot be guaranteed. No separate payment will be made for this bus and driver. The cost shall be included in the bid item "Mobilization". The Contractor may request

and if available, utilize a contractor staging area at the DIA south campus construction support area along 71<sup>st</sup> Avenue. The Contractor shall be responsible to transport employees from this staging area to the jobsite. These staging areas are undeveloped and there are no utilities or other services that are guaranteed at the staging area. Also the contractor shall provide improvements to the staging area as required to comply with all applicable environmental or other requirements from any Federal, State or local government or agency with jurisdiction.

7. A site for the Contractor to install a batch plant will be available. The exact location is not yet determined and can be as far as 1 mile from the jobsite. This batch plant site is also undeveloped and the Contractor shall be responsible to make improvements to the site as required for the site and for the Contractor's operation to comply with the requirements of any Federal, State or local government with jurisdiction. Should the Contractor use a mobile Continuous mixer (see spec 033750), the Contractor shall submit for approval a Traffic Control Plan – Method of Handling Traffic, that complies with the MUTCD requirements for parking the mixer in or near a traffic lane.

**B. System Interruptions**

1. The Contractor shall submit on an approved electronic form through the Project Manager all requests for system interruptions including but not limited to: fire alarm, HVAC, electrical, water systems, roads, walkways, parking or other systems. System interruptions shall not be approved if the interruptions are not first approved by airport operations and the affected tenant or users. Baggage system shutdown shall be limited to between the hours of 10:00 p.m. and 4:00 a.m. and in accordance with Technical Specifications Section 01014. Roadway shutdown times are to be coordinated with Airport Operations and the DIA Project Manager prior to submitting a request for approval to shutdown a roadway.
2. The request forms shall be submitted only during the normal work week (Monday through Friday) between 8:00 a.m. and 4:00 p.m. All system shutdowns must be requested and the forms submitted a minimum of 5 working days before the shutdown is required.
3. Scheduling for Shutdown and Lockout: The Contractor shall maintain on the on-going two week look-ahead schedule a schedule for shutdown/lockout requests. These shutdown plans shall include drawings of the proposed shutdown areas. This look-ahead schedule and plans shall be provided daily two weeks before the work is planned to the DIA Project Manager and other representatives that may be affected by the work or shutdown. The Contractor shall be prepared to meet as required with the affected parties and the DIA Project Manager to review and discuss the current and future shutdown issues. The Contractor shall adjust his shutdown plans and schedule as required to meet the needs of DIA, the other affected parties and the DIA Project Manager.
4. Upon approval of a system shutdown, the Contractor representatives and the individuals performing the work shall remain at the worksite and shall remain in contact with Maintenance Control until such time as the system is restored to working condition. The requesting party shall assume liability for the system until the system is restored to proper working order.
5. Fire Systems, HVAC, and Plumbing: Submit requests five working days prior to the time of requested interruption.
6. Electrical System Interruptions: Submit requests five working days prior to the time of requested interruption.



7. Baggage system interruptions: See item F below.
8. Baggage System Activation: The system shall be activated at 4:00 a.m (or at the established time). In order to activate the system on schedule, before the 4:00 a.m. activation (or other established activation time) the Contractor shall begin clearance and removal of construction equipment, materials, barriers, and personnel in areas and envelopes of the baggage system. The Contractor shall complete cleanup of the work area. The Contractor shall take all steps to ensure that all baggage systems envelopes are clear of personnel, protective coverings, and equipment prior to 4:00 a.m.(or the established time). The Contractor's safety representative shall contact the United Airlines representative and shall inspect areas of work to ensure removal by the Contractor of all personnel, materials and equipment between 3:30 a.m. and 4:00 a.m. At 4:00 a.m. the baggage system will be activated. After this time until the next shift (10:00 p.m.), Contractor personnel or equipment shall not be mobilized in the area of the baggage system (generally anywhere in the baggage rooms on level 3 of the parking garages).
9. Liquidated Damages for Failure to Return a System to Operation or Use as Scheduled and/or Liquidated Damages for Disruption to airline, passenger or DIA operations:  
  
After a scheduled shutdown it is required to return a system to operation as planned. The Contractor shall be subject to Liquidated Damages for delays to or failure to return a system in acceptable condition for full use by the Airport. The Liquidated Damage shall be as defined in Contract Special Conditions.

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 DIA 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. ***This project will require access to the Restricted area and, as noted above, security badges are required to provide vehicle access to the Parking Revenue Control area.*** Refer to Technical Specifications Section 01015 and 01016 for requirements.
  - b. If not in a restricted area, the Contractor personnel still must be badged; reference Technical Specifications Section 01015.

D. CONDUCT OF PERSONS WHILE AT THE DENVER MUNICIPAL AIRPORT SYSTEM

1. Contractor activities shall comply with Airport Operations and Regulation 130 TRAFFIC and 20 CONDUCT OF PERSONS USING THE DENVER MUNICIPAL AIRPORT SYSTEM. These regulations are available from Airport Operations at Denver International Airport.

E. OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION

1. 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.

A. BAGGAGE SYSTEM SHUTDOWN AND LOCKOUT: Prior to and during work in any area that requires access adjacent to, under, or above baggage systems, the Contractor shall coordinate with baggage system representatives of the affected airlines and DIA:

1. Work in these areas shall be limited to between the hours of 10:00 p.m. and 4:00 a.m or

as established by the affected airlines and/or baggage system representatives. The Contractor shall schedule and plan activities within these areas during the shutdown to ensure removal of personnel and equipment within the time frame as indicated in this Technical Specifications Section. The Contractor shall not have access to the work areas requiring shutdown and lockout during a limited number of selected days. The Contractor shall coordinate with the Project Manager and the affected airline and/or baggage system representatives to develop detail scheduling on a day-to-day basis.

2. Scheduling for Shutdown and Lockout: The Contractor shall maintain an on-going one week look-ahead schedule of shutdown/lockout requests including areas identified on plan diagrams. This look-ahead schedule shall be provided daily to the Project Manager and the affected airline and/or baggage system representatives.
3. Sequence of Shutdown and Lockout
  - a. 10:00 p.m. Shutdown and Lockout. Prior to 10:00 p.m., the Contractor's Superintendent and the Contractor's Safety Representative shall meet with the airline baggage system representatives and DIA representatives to review the areas or zones to be inactivated to allow the Contractor to proceed with work.
    - 1) Baggage Mechanical Systems Lockout. Baggage system representatives in conjunction with the Contractor representatives shall install barriers to isolate the zone of the Contractor's work. The barriers are to ensure no baggage system intrusion into the area. Protection of the baggage equipment and barriers are to be provided by the Contractor.
    - 2) Baggage Electrical Systems Lockout. A representative from the airline and/or baggage system, in conjunction with Contractor representatives, shall place locks on power cabinets supporting baggage equipment for the identified contractor work zone. Each party shall provide a lock.
    - 3) The Contractor may begin work in baggage system zones after the Contractor's Safety Representative has confirmed lockdown and lockout have been completed. The Contractor shall begin work by first providing covers and protection of baggage system and building systems to preclude damage during the Contractor activities. DIA and/or the airline or baggage system representatives prior to the Contractor beginning work shall review all protection systems for acceptance.
  - b. System Activation: The system shall be activated at 4:00 a.m. Before 4:00 a.m. the Contractor shall begin clearance and removal of equipment, materials, barriers, and personnel in areas and envelopes of the baggage system. The Contractor shall take all steps to ensure that all baggage systems envelopes are clear of personnel, protective coverings, and equipment prior to 4:00 a.m. The Contractor's safety representative shall contact the airline and/or the baggage system representative and shall inspect areas of work to ensure removal by the Contractor of all personnel, materials and equipment between 3:30 a.m. and 4:00 a.m. At 4:00 am the baggage system will be activated. After this time until the next shift (10:00 pm), Contractor personnel or equipment shall not be mobilized in the area of the baggage system (generally in the envelope above 8'0" in the basements).

**B. Welding Equipment, Procedures and Constraints**

1. Natural gas-powered portable welders or "Powcon Inverter" welders are the only acceptable welding equipment to be used inside of building basement or tunnel areas. Acceptability of equipment other than the equipment noted above shall be at the sole discretion of the DIA Project Manager. If the Contractor proposes other types of inverter welding equipment, testing of equipment for harmonics by the Contractor must be completed prior to the request by the Contractor for use of the equipment.

2. Welding activities inside buildings require submittal of a System Interruption Request (See paragraph 1.04.B of this Specifications Section). 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 or shall remove the smoke detector heads or shall implement the requirements of the DIA Life Safety Team or the DIA Project Manager until work is complete. Prior to expiration of each interruption of the system, the Contractor shall uncover the smoke detectors or work with the DIA Life Safety Team as required to re-establish the Fire Alarm system to restore full function and system coverage.
  3. Electrical Service: The Contractor shall be responsible for verifying with the DIA 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.
    - a. Temporary Hook-up: Pigtails wired into electrical panels – All work whether temporary or permanent must meet all applicable codes. Permanent installation shall require conduit, labeling, and all requirements of Division 16 Technical Specifications. Comply with the following:
      - 1) Provide 20 amp, 3 pole plugs.
      - 2) Wire shall be (4) #10 copper
      - 3) 480V, 3 phase, 3 pole, 4 wire twist lock ground line
      - 4) NEMA L16-20 or ANSI C73.87
    - b. The Contractor may not begin operation of the equipment prior to request for inspection by DIA representatives and acceptance of the installation.
  4. Welding Practices: All standard safe welding practices must be followed, including but not limited to the following:
    - 1) Flash protection for surrounding areas
    - 2) Contractor fire extinguisher in area
    - 3) One person in each welding area solely designated as fire watch for each welder
    - 4) Protect all equipment, cable trays and contents, etc. in area
    - 5) Use fire blankets and other appropriate materials to confine sparks and molten metal from the welding, cutting, and/or grinding activities.
    - 6) All welders shall have been qualified through welding tests in accordance with applicable welding code, such as but not limited to AWS, ASME, API, within one year prior to welding taking place. Evidence of qualification shall be through Welding Performance Qualification Records (WPQR).
    - 7) All welder qualifications test shall be or shall have been administered and witnessed by an Independent Testing Agency (ITA), AWS Certified Welding Inspector (CWI).
    - 8) If re-certification of welders is required, delay costs and retesting costs shall be borne by the Contractor.
    - 9) See Specification 05999 Welding and comply with all requirements.
  5. Grounding: Review with DIA representative's area of work prior to beginning work to ensure ground procedures do not induce undesirable charges in steel building system or other systems. This review should take place subsequent to the pre-work meeting. Do not ground to adjacent building systems, baggage system, hangers, or devices that support mechanical or electrical equipment.
- C. Gasoline and Diesel Powered Machinery – When operating gasoline or diesel powered machinery in the partially enclosed confines of the work areas this can generate excess

accumulation of fumes either or both in the work area or in the areas adjacent to the work areas. If this condition or a similar condition arises the Contractor shall immediately modify its operation to eliminate this condition. The contractor's correction of this or similar issues is considered incidental to the work and no added costs will be authorized.

- D. Dust, Debris, Odors, Chemical Fumes, Noise and Any Other Disruptive Contractor Activities or Affects – The Contractor shall take all action necessary to manage any disruptive effects of the work so that there are no complaints or no disruptions of airline, passenger, or DIA operations. Failure to comply can result in assessment of liquidated damages as outlined in the Contract Special Condition SC-8.
- E. Cleaning Equipment and Spoils
1. Discharge of water, liquids, or chemicals into the building waste, drain systems or storm drainage systems is prohibited. The Contractor shall comply with all Federal, State, and Local requirements and the requirements of this Contract for disposal of chemicals or any waste discharge whether solid, liquid or gas. The Contractor shall maintain and service in all appropriate areas containers to properly manage all disposal issues. The Contractor shall be aware that water used to wash down the concrete floor before sealer or any water in the work zone is not permitted to be discharged down the storm drain and must be collected and disposed of in an approved manner.
- F. Vehicle Permitting for Tunnel and Basement Use
1. All vehicles (including electric carts) with tunnel and basement access require permits. Only CNG powered trucks are allowed in the tunnel and basements of the buildings. CNG/gasoline 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 DIA Airport Security Office for a fee of \$5.00 each.
- G. Radio and Cell Phone Use
1. The Contractor shall have in place prior to initiation of work in the tunnel or basements communications equipment either by use of cell phone and or radio. Cell phone coverage in the basement and tunnels may have areas where coverage is not available. Radio equipment shall be submitted to DIA for approval of use at least 14 days prior to intended use. Radio equipment frequencies shall be submitted. Frequencies shall be subject to DIA approval.
- H. Keys
1. The Contractor shall be required to contact DIA 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 DIA Maintenance Control at the end of each work shift.
- I. Damaged or Dirty Vehicles Caused by Construction Activities.
1. The Contractor shall be responsible for protecting, and/or cleaning and repair of any vehicles that are in any way made dirty or damaged by the actions of the contractor. As determined by DIA Parking or by the DIA Project Manager, the Contractor shall be responsible for paying for customer cars to be washed or detailed should dust, water or other material from the work site be the likely cause of the complaint. The Contractor shall be required to address the damages to vehicles paint finishes as a result of any

Construction related activity. The contractor shall be required to address all issues related to sparks or chunks of concrete or of any construction debris whatsoever that may cause or was likely to have caused damage of any kind to any vehicles that where there is reason to believe that the vehicle damage was or may have been caused as a result of the construction activities. DIA will forward all damage issues to the Contractor for resolution. The Contractor shall keep the DIA Project Manager advised in writing of the status of all damage claims and the Contractor shall resolve all damage claims with customers or those claims will be decided by the DIA Parking Office and The DIA Project Manager and that decision will be final and enforced against the Contractor and the costs to settle the claims will be deducted from any money owed to the Contractor.

- J. Existing Electrical Conduit Systems for Lighting, Communication, Fire Alarm and for any other Systems that exist and may be affected by Contractor activity.
1. The Contractor shall be responsible for the Complete Protection of any and all systems that may be affected by Contractor activity. These systems whether active or currently not in use are part of a valuable infrastructure that must not be compromised or damaged in any way. The Contractor shall plan all work activities to not damage, compromise or interfere with any of these systems. Any conduits that are bent or damaged in any way must be replaced with new conduit and new wires must be installed to match the existing system to the satisfaction of the DIA System Manager and the DIA Project Manager. The Contractor should be aware that the lighting system is 277 volts.
  2. The Contractor shall be aware that there are conduit in the Parking Structure that support the Fire Safety system for the parking garage. If that system is accidentally tripped by construction activities this causes the fire pipe system to fill with water and sets off a fire alarm in the Parking Structure and the Terminal. For safety reasons this alarm shuts down the Terminal Elevators which is an unacceptable disruption to our Airline customers and Airport Operations. This situation will not be tolerated. If any contractor caused trip of the Fire System causes the charging of the fire system piping or causes the alarm in the Terminal, the contractor shall be assessed a Liquidated Damages as defined in the Contract Special Conditions, see SC-8.

#### 1.05 COORDINATION

- A. The Contractor will designate a contact person for coordination with the DIA Project Manager, airline tenants and all other affected parties. 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 his bid costs for coordination of all activities.

#### 1.06 LATE COMPLETION

- A. The Contractor will notify the City as soon as possible, but in no case not less than four weeks in advance, of the inability to meet any of the constraints or milestones. Notification shall be consistent with the requirements of Article 5, General Conditions.

## 1.07 SUBMITTALS

- A. Refer to Technical Specifications Section 01300 for submittal procedures. Submit the following as indicated:
  - 1. Provide all planning maps and coordination drawings necessary to make complete presentations of the required traffic control, pedestrian control and any other plan that may be required by the DIA Project Manager to concisely communicate the Contractor's work plan to all DIA stakeholders (airlines, rental car agencies, bus companies, taxis, limousines, all DIA agencies and any other affected group).

## PART 2 - PRODUCTS (NOT USED)

## PART 3 - EXECUTION

### 3.01 DUST/PROTECTION BARRIERS

- A. Prior to any demolition the Contractor shall construct area containment walls for dust, debris and odor containment. The location of the barriers shall coordinate with the use of the adjacent area, and be as directed by the DIA Project Manager. The Contractor shall submit a barrier plan to the DIA Project Manager for review and approval before starting work. Dust barriers shall be constructed of material sufficient for the intended purpose and as approved by the DIA Project Manager. At a minimum, any space containing electrical or telecommunications equipment will require dust barriers for the entire space during demolition and construction. Contractor shall install all required modifications to exit/egress signage until temporary barriers are removed. Contractor shall coordinate location of partition with Fire Sprinkler Contractor to ensure adequate sprinkler coverage during construction. Temporary barriers shall be removed only after completion of the work scope within the areas including final punch list activities. Areas between ceilings and structure above shall be contained to prevent migration of any dust into adjacent areas.
- B. HVAC system containment. The Contractor shall submit system shutdown requests for HVAC and Fire Alarm or other affected systems prior to any modifications or partial outages to the systems in or around area of work. Subject to approval by DIA, the HVAC system shall be modified to prevent dust from entering the building or the supply or return ductwork. Or the Contractor shall revise his operations as required to prevent dust or other contaminants from entering any portion of the terminal, baggage area or parking garage that might negatively affect the people or the use of any part of the Airport.
- C. Dust, Debris and Odor Protection Barriers: The Contractor shall construct code-approved and DIA-approved dust, debris and odor protection barriers at all locations as needed to allow continual and uninterrupted use of all Airport spaces. Barriers shall be constructed to allow emergency ingress and egress to and from the building and to and from equipment rooms and building system spaces. Submit a plan for barrier construction to the DIA Project Manager for approval before proceeding with the work. Approval is required. Should the approved barricades be found to be insufficient the Contractor shall be required to take all necessary action to provide barriers or to take other actions to solve the problem.

If applicable, return all removed door hardware to DIA. Label each hardware set correlating the door number of the original hardware set. Coordinate with the DIA Project Manager representatives for storage and return of hardware.
- D. Dust and/or Chemical Odors from Construction Products or Construction activities: The Contractor shall take all measures to insure that neither dust nor chemical odors generated

from the work site are allowed to enter any area of the parking garage Terminal Roadway or Terminal where people may be adversely affected and that in any way could interfere with the normal use of the terminal or baggage space or any other portion of the airport. In order to meet this requirement the Contractor shall be required to submit a plan to prevent this type of occurrence and that plan will be reviewed for approval by the DIA Project Manager and other relevant persons. Some of the measures that may be required shall include, but not limited to : the requirement to conduct the offensive operation at night, the requirement to install a barrier to stop the offensive material from entering the occupied area or any building ventilation intake, the requirement to conduct a shutdown of the Fire Alarm system, the requirement to construct wind barriers to control movement of the offensive material, the requirement to provide fans large enough to blow the offensive materials away from the area of concern, the requirement to add additional filter material to existing air handling units to prevent dust or odors from entering the system, the requirement to install new HVAC air filters to replace dirty filters, the requirement to deactivate and subsequently reactivate existing HVAC units to manage air movements, the requirement to use water for cutting, grinding or any dust making operation in order reduce the production of dust, the requirement to not use dust creating tools such as leaf blowers for any operation, the requirement to use vacuum cleaner type equipment to minimize dust generation caused by common brooms and other common construction operations.

### **3.02 EQUIPMENT**

- A. Equipment: Subject to the requirements of the Building Code, Fire Code and any other applicable regulation, 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. All equipment must be submitted for approval and that approval is conditional and may be revoked based on circumstances related to disturbance or disruption of any Airport function or system. Contractor shall be responsible for all permits as may be required for use of equipment.
- B. Electric: Electric powered equipment is acceptable in the Work area.

### **PART 4 -**

### **PART 5 - MEASUREMENT**

#### **5.01 METHOD OF MEASUREMENT**

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

### **PART 6 - PAYMENT**

#### **6.01 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 01014**

## SECTION 01015

### SECURITY REQUIREMENTS

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. Badges and Permits: DIA requires personnel badging and vehicle permitting administered by the Denver International Airport Security Office. The Contractor shall be required to obtain the proper access authorizations for badges and permits, and the Contractor shall immediately report the presence of unauthorized (unbadged) persons or unauthorized (no permit) vehicles on site to the DIA Project Manager. For this project while working on the Terminal Roadways and parking structures, the construction supervisors and foremen for each subcontractor are required to have DIA security badges. For workers required to access the terminal baggage areas ALL contractor personnel shall be required to have DIA security badges. Also, any employee (such as a truck driver) that is required to enter and exit the parking revenue control area will need a badge to provide access into and out of the revenue control area. There must be a badged supervisor in the work area at all times.
- B. Fences: If required, the Contractor shall establish and maintain a secure (fenced) perimeter at its work areas and operations area to include its field offices, staging and storage areas, and maintenance facilities. The responsibility for security within its areas 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 areas must be approved by the City prior to its installation.
1. 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 City.

##### 1.02 VENDORS AND SUPPLIERS

- A. The Contractor shall escort ON A FULL TIME BASIS all unbadged vendors and suppliers requiring access to the restricted areas. Only those vendors and suppliers providing materials and/or supplies shall be allowed on site.

##### 1.03 CONTRACTOR PARTICIPANT MANUAL

- A. A Senior Company Manager of the Contractor is required to designate an Authorizing Agent(s) recognized by Airport Security as the company security representative and contact. The Authorizing Agent(s) are required to attend a Security Meeting and submit to a Criminal History Records Check (CHRC) and a Security Threat Assessment (STA). Upon clearing the background checks, the Authorizing Agent will be issued a Contractor Participant Manual and an Airport Security Program (ASP) from the Airport Security Office and must follow all guidelines. The Contractor shall comply with DIA policies and TSA regulations.
1. Denver Municipal Airport System Rules and Regulations Part 20 (Airport Security Rules and Regulations), Part 130 (Movement of Vehicles in Restricted Area), and all other parts shall be adhered to. These regulations are available for review at [flydenver.com](http://flydenver.com).



2. All work shall be accomplished in accordance with FAA Advisory Circular AC150/5370-2E, "Operational Safety on Airports During Construction", 49 CFR Part 1542 and 14 CFR Part 139 except as modified herein.
  3. The following paragraphs supplement, modify, change, delete from or add to FAA AC150/5370-2E. Where any paragraph, subparagraph or clause of the Advisory Circular is modified or deleted by these supplements, the unaltered provisions of that paragraph, subparagraph or clause shall remain in effect.
  4. The Transportation Security Administration 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 a guard at the gate who shall have been trained and certified by Airport Operations to facilitate access to its work. The Contractor assumes full responsibility for maintaining security once this is done. 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. A more detailed explanation of security requirements may be found in the Contractor Participant Manual.
  5. Contractors will be required at all times to have a supervisor or foreman at each work location in both restricted and non-restricted areas.
- B. Access to Restricted Area via Vehicles
1. The Contractor shall obtain access to the restricted area via vehicle only when the vehicle displays a Vehicle Permit issued by Airport Security (refer to Technical Specifications Section 01016) and the driver has an Airport ID badge with a driver authorization.

## **PART 2 - PRODUCTS (NOT USED)**

## **PART 3 - EXECUTION**

### **3.01 SUBMITTAL FOR BADGES**

- A. The Contractor may at his own risk submit the required information to DIA Planning and Development Division and to DIA Airport Security prior to Notice to Proceed in order to expedite the badging and permitting process. This early submittal is encouraged since the background check process can take 3 to 30 business days or more. Since the time for background checks is a known requirement, DIA will not consider any badging or permitting delays as compensable for added contract time or value.
- B. By submitting information for personnel badges, the Contractor certifies that the personnel have no disqualifying felony convictions, as defined by Federal Regulations, the employees have valid Colorado driver licenses, and the employees have not previously been required to surrender their badges due to any violations.
- C. Airport ID Badges are obtained as follows:
  1. The Contractor shall designate an Authorizing Agent who is a full time employee of the Contractor and who shall be authorized to sign for the Contractor on employee applications for badges.
  2. The Contractor shall meet with the DIA Project Manager to review the procedures and

required access points at DIA. The Contractor and the Project Manager shall visit the site to verify the access points. Access points shall be listed and submitted by the Contractor to the Project Manager for review and comment prior to Contractor's application for badging.

3. The Contractor's Authorizing Agent shall schedule a Participant Meeting with the DIA Airport Security Office to review DIA security procedures. A second meeting will be scheduled for the Authorizing Agent to learn how to successfully complete the required forms for employee badges and vehicle permits.
4. A Criminal History Record Check and Security Threat Assessment (STA) are required for each employee requesting unescorted access to the restricted areas. The employee will complete the Airport Security Badging and Fingerprinting Form (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 Criminal History Records Check and will return the results to the Airport Security Office. (Usually within 3 to 30 business days) The cost of the Criminal History Records Check is \$40.00.
5. When notified by Airport Security that the Criminal History Records Check is completed and cleared, the Contractor shall call to schedule an appointment for employees to come to the Airport Security Office to receive security and driver training. The appointment will take approximately one hour for security training and approximately two hours for security and driver training.
6. All employees will see an interactive security film and must pass a test when they come in for their Airport ID badge appointment. All employees driving on the airfield must also view an interactive driving film and take a second test in addition to receiving airfield driver familiarization training by the Contractor's driver trainer before being allowed to drive on the airfield. Driver familiarization training must be completed within 10 days of receiving the badge.
7. **THE EMPLOYEES THAT ARE REQUIRED TO BE BADGED (SEE para 1.01.A above) WILL REQUIRE A YELLOW CONTRACTOR BADGE.** The Contractor is advised that there is a \$10.00 non refundable fee for each Airport ID issued for unescorted access (Yellow Contractor badge). The annual rebadging fee is \$10.00 per badge.
8. The Airport ID badges must be returned to the Airport Security Office prior to final payment. All Airport ID badges are issued with the expiration date of the project or the Contractor's insurance expiration/renewal date, whichever comes first, on the badge. Contractors shall notify the Project Manager as soon as possible but in no case not less than four weeks in advance of any requirement to extend the duration of badge validations.
9. Fees for startup:
  - \$ 40 Criminal History Records Check (per employee) for Unescorted access.
  - \$ 10.00 Badge (per employee)

## 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 01015**

## SECTION 01016

### VEHICLE AND EQUIPMENT PERMITTING

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. The Contractor shall comply with the Airport Security Plan. Vehicle permits are required for all vehicles operating in the restricted area. Two types of permits are required. The DIA vehicle permit is required for vehicles operating in the restricted area but limited to above grade, outdoor activity. Vehicles or machinery operating within buildings shall be required to acquire a DIA emissions permit as well as a DIA vehicle permit.
- B. Contractors performing work in or through restricted areas 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 Operations Office. Contractors shall comply with the DIA Rules and Regulations.
1. Airport Operations Regulations **130 TRAFFIC** and **20 CONDUCT OF PERSONS USING THE DENVER MUNICIPAL AIRPORT SYSTEM** shall be followed. These regulations are available from Airport Operations at Denver International Airport.
  2. All work shall be accomplished in accordance with FAA Advisory Circular AC150/5370-2C, "Operational Safety on Airports During Construction", 49 CFR Part 1542 and 14 CFR Part 139, except as herein modified.
  3. The following paragraphs supplement, modify, change, delete from or add to FAA AC150/5370-2C. 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.
  4. Special care shall be exercised by the Contractor when operating within clear zones, under approach and departure zones of runways and in the apron area. The clearance zones shall be considered as extending to a distance of 750 feet laterally from the centerline of runways and to a distance of 193 feet laterally from the centerline of taxiways. Where these zones overlap, the greater distance shall apply. Vertical clearance in the approach and departure zones shall be considered as starting at grade 200 feet beyond the ends of runways and rising at the rate of 50 feet horizontal to one foot vertical.
  5. When Work under this contract will take place in the areas listed above, the Contractor must have a radio for communications with Airport Operations. The radio will be assigned after receipt of a \$2,000 deposit. The radio must be with personnel performing work in the airfield operations areas.
  6. Access to the runways, taxiways and aprons shall be gained by the Contractor after establishing radio communications with Airport Operations. No personnel or equipment will be allowed on the runways until radio contact has been made with Airport Operations and permission given.
  7. Access to airport operations areas 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.

8. Once admitted into the restricted area, the Contractor shall proceed directly to the Work location by way of a route assigned by Airport Security. 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 restricted area may be subject to fines, suspension or permanent revocation of the Airport ID badge and driver authorization.
  9. The Transportation Security Administration 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 a guard at the gate, who shall be trained and certified by the Airport Operations, to facilitate access to its work. The Contractor assumes full responsibility for maintaining security once this is done. 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. A more detailed explanation of security requirements is in the Contractor Participant Manual which is available from Airport Operations.
  10. Cranes and Construction Equipment: The Contractor shall provide the necessary drawings and specifications to indicate all information needed by the FAA and the City including but not limited to location of construction activities and height of objects including cranes, construction equipment and vehicles. Drawings shall be scaleable site plans indicating northing and eastings of proposed equipment locations, air space northing and eastings of activity and elevations of equipment based on DIA datum. Specifications shall include standard sheets on equipment specifications and any non-standard modifications to the equipment.
  11. The above information shall be submitted to the Project Manager for approval five days prior to mobilization. Changes to information submitted shall be re-submitted for approval at least five days prior to mobilization of any change.
  12. If required by DIA, standard DIA-approved warning lights and flagging will be required on any temporary equipment or structures.
  13. Lighting of the work area is subject to approval by DIA Operations and DIA Planning and Development. The Contractor shall include in item (10) above information on any site lighting proposed by the Contractor. The locations, heights and types of luminaries shall be submitted. The Contractor shall conduct his activities, especially lighting, so as not to interfere with Airport and FAA operations.
- C. General safety regulations when in aircraft operations areas may include the following:
1. At all times, the Contractor shall coordinate its work with the requirements of the Airport site and operations. All work, movement of men, 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 his 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 Contractor's 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 his 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 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 worksite 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

1. Vehicle permits are limited to those vehicles and or equipment required for completion of the work. Employee vehicles will not be issued permits. Employee parking is addressed in Technical Specification Section 01014 or as indicated in the Contract Documents. No Contractor employee parking will be acceptable in the Restricted Area.
2. The Contractor shall obtain access to the restricted area only when the vehicle displays a Contractor permit and the driver has an Airport ID badge with a driver authorization. Vehicle permits may be obtained as follows:
  - a. Contractor vehicle permits cost \$105.00 dollars, of which \$100.00 dollars is a deposit refunded at completion of work and after the permit is returned to Airport Security. Vehicle permits must be surrendered before final payment will be made for work accomplished. A Vehicle Permit Application must be filled out and approved by the Project Manager prior to the issuance of the permit. The Contractor's Security Coordinator must file a sponsorship form with DIA Access Services and accompany any subcontractor requesting a vehicle permit. The approved vehicle application must be presented at Airport Security to obtain the vehicle permit.
  - b. All vehicles that are not permitted by Airport Operations to drive in the restricted area are required to be escorted. All vehicles that are escorted must have a minimum of \$1,000,000.00 combined single limit coverage with a 30 day notice of cancellation to Airport Operations. All unescorted vehicles must have \$10,000,000.00 combined single limit coverage with a 30-day notice of cancellation to Airport Operations prior to any permits being issued.
  - c. Contractor permits are issued with the expiration date of the project on the permit. A \$5 fee will be charged for a new permit that requires an extension of time.
  - d. The Contractor must have a four-inch letter company logo on each side of the vehicle, or the Contractor shall obtain an orange and white checkered flag. The cost of the flag is \$30.00, and may be obtained at Access Services. All vehicles operating in the restricted area must display the logo or the flag at all times. Contractors may use old flags in good condition.
  - e. The Contractor shall obtain a driver authorization for all operators of vehicles in the restricted area. Reference Technical Specifications Section 01015.
  - f. Contractors will be required to have a supervisor or foreman at each work location at all times.

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 DIA Maintenance and the Denver Fire Department. **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 Specifications Section 01014.**

## PART 2 - PRODUCTS (NOT USED)

## PART 3 - EXECUTION

### 3.01 PERMITS

- A. Vehicle permits shall not be issued prior to Notice to Proceed. The Contractor may, at his own risk, submit required information prior to Notice to Proceed to the following:
  1. Vehicle permit: DIA Engineering Group or DIA Airport Security
  2. Equipment and vehicle emissions permit: DIA Engineering or DIA Maintenance Group.

### 3.02 SCHEDULE

- A. The Contractor shall allow in his schedule five days for DIA 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 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. All permits shall be returned to the City prior to the Contractor submittal for Final Settlement, Termination, and/or upon written request from the Project Manager.

**END OF SECTION 01016**

**SECTION 01020**  
**UTILITIES INTERFACE**

**PART 1 - GENERAL**

**1.01 DESCRIPTION**

- A. Various utilities are located within the limits of work in the project area. The owners of these utilities hereinafter noted may require that the Contractor is to work around their existing facilities until such alterations, relocation or abandonment have been completed. All known existing utilities are shown; however, the Contractor shall verify and satisfy himself that there are no other existing utilities that may not be shown.
- B. The owners of known utilities within the project area and corresponding representatives are:
- |                                 |                   |              |
|---------------------------------|-------------------|--------------|
| Qwest Telephone                 | Margaret Zeiler   | 303-451-2682 |
| DIA Telephone                   | James Winston     | 303-342-2200 |
| Xcel Energy Natural Gas         | Dan Turner        | 303-375-3509 |
| Xcel Energy Electrical Services | Dan Turner        | 303-375-3509 |
| DIA Storm Water                 | Donald Smith      | 303-342-2200 |
| DIA Sanitary Sewer              | Donald Smith      | 303-342-2200 |
| Denver Water Department         | John Bambei       | 303-628-6669 |
| North American Resources        | Larry Lott        | 303-655-4412 |
| Fuel System (ASII)              | Gil Patron        | 303-342-3552 |
| Premise Wiring System           | Alberto Benavente | 303-342-2200 |
| FAA Duct Bank                   | Jim Martinez      | 303-342-1828 |
| Oil/Gas Wells                   | Ed Neibauer       | 303-659-9110 |
| DIA Electrical Department       | Pat Kelly/Tai Lai | 303-342-2800 |
| Fire Alarm System               | Pat Kelly/Tai Lai | 303-342-2800 |
| Paging System                   | Pat Kelly/Tai Lai | 303-342-2800 |
- 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. 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. The maximum size of any vehicle crossing operating pipelines at any location in the project area shall be limited to no larger than a Caterpillar D6 bulldozer unless noted otherwise.
- E. Coordinates for known utilities located within the project area may be available at the Denver International Airport Office. These utilities locations are based upon information provided by the utility companies or previous construction contractors that were the basis for determining utility coordinates. The City does not warrant their accuracy.
- F. The Contractor shall control his operations in order to avoid creating any obstacles for the utility owner's access for maintaining or operating their equipment.

**1.02 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.

### **1.03 QUALITY CONTROL**

- A. When the Contractor performs any operations that will impact a utility owner, the Contractor will give timely notice to the utility owner and the DIA Project Manager so that the Contractor's operations may be observed by the utility owner's representative at the discretion of the utility owner's representative and the Project Manager's representative.

### **1.04 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 requires a minimum of 12 feet of total cover over their pipelines at each crossing. This required cover is to extend a minimum distance of five feet perpendicular on both sides of the pipeline, then slope away from the pipeline at a slope determined by the Contractor as sufficient for his vehicles. The top 12 inches of the cover overall shall be Colorado Department of Highways Class 6 road base.
- 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 Highways 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.
- 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.

## **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 or the DIA Project Manager and shall be solely responsible for protection of the utilities during construction. Only manual labor shall be used within five feet of the suspected location of a utility to uncover it. The Contractor shall obtain written permission from each utility owner before constructing crossings or crossing pipelines in service, and provide the Project Manager with a copy of the permission 48 hours prior to commencement of crossing work.
- B. A minimum of three days notice by the Contractor shall be given to the utilities for locating and potholing their lines as needed.
- C. The Contractor shall notify the Utility Notification Center of Colorado (303) 534-6700 as a minimum for location of utilities.
- D. In the event that the Contractor needs to conduct Contractor's operations which will affect an operating utility, the Contractor shall be required to sign a "hold-harmless" agreement with the owner of the utility prior to the Contractor conducting any operations affecting the utility.

### **3.02 TRENCHING AND SLEEVING**

- A. All trenching, excavation, sleeving and shoring needed to cross over or under a utility shall be performed in the manner required by the party owning the utility and in such a manner as to ensure no dislocation of the existing utility. The method used to cross under the utility shall ensure it is fully supported at all times. The Contractor shall accurately locate and record the position of a utility being crossed as soon as it is uncovered and again prior to covering it and report to the Project Manager any change in location greater than 0.5 inch. The crossing shall be protected so that water or construction equipment will not dislocate or undermine unsupported sections of the utilities.

### **3.03 COVER AND COMPACTION**

- A. Backfilling of trenches or adding additional cover shall be conducted at all times in a manner that will prevent damage to the pipe. If the excavated material is not suitable for backfill and cover, as determined by the DIA Project Manager, unsuitable material shall be hauled away and disposed of properly. The owner of the utility will observe at all times the installation of the backfill and cover. Backfill and cover shall be the placement of suitable materials in horizontal, uniform layers and brought up uniformly on the sides and over the pipelines.
- B. The thickness of each layer of backfill shall not exceed eight inches before being compacted to 95 percent relative compaction per ASTM D-698 or to the density required by the utility owner and tested for density by the Contractor.

### **3.04 ROADBASE COMPACTION**

- A. If the required compacted depth of the road base exceeds eight inches, it shall be constructed in two or more layers of approximately equal thickness. The maximum compacted thickness of any layer shall not exceed eight inches before being compacted to 95 percent relative compaction per ASTM D-698 or to the density required by the utility owner.

### **3.05 REMOVAL**

- A. All temporary crossings shall be removed after completion of the work.

**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 multiplier work request bid item.

**END OF SECTION 01020**

## SECTION 01025

### MEASUREMENT FOR PAYMENT

#### PART 1 - GENERAL

##### 1.01 SCOPE

- A. This Section covers the requirements for measurement of quantities for payment as they apply to this contract.
- B. Measurement methods specified in the individual sections of these specifications shall govern if they differ from methods specified in this Section.
- C. The Contractor will compute all final quantities subject to review and acceptance by the Project Manager. Where necessary, such computations will be based upon surveys performed by the Contractor as specified in Technical Specifications Section 01050.

##### 1.02 MEASUREMENT OF QUANTITIES

- A. Measurement Standards
  - 1. All work to be paid for at a contract price per unit of measurement will be measured by the Contractor in accordance with United States Standard Measures.
  - 2. Measurements are subject to check and review by the Project Manager: if errors are found the Contractor shall correct them. If, in the opinion of the Project Manager, the errors are significant or frequent enough, the Project Manager may make the measurements with his own forces at the Contractor's expense. No payment will be made on that portion of an item containing measurement or calculation errors until the errors are corrected to the satisfaction of the Project Manager.
- B. Measurement by Weight
  - 1. Items to be paid for by weight shall be measured by scale or by handbook weights for the type and quantity of material actually furnished and used. One ton shall consist of 2,000 pounds. Handbook weights will only be allowed if there is one-half of one percent or less difference between the handbook weight and the allowable deviation per manufacturer's specification of a material's finish weight.
  - 2. Material to be measured and paid for by weight shall be weighed on accurate, approved scales, furnished by and at the expense of the Contractor. Platform scales of sufficient size and capacity shall be used to permit the entire vehicle or combination of vehicles to rest on the scale platform while being weighed. Combination vehicles may be weighed as separate units provided they are disconnected while being weighed. All scales shall be inspected and certified as often as the Project Manager may deem necessary to ascertain accuracy. Costs incurred as a result of regulating, adjusting, testing, inspecting and certifying scales shall be borne by the Contractor.
    - a. Scales for weighing materials which are required to be proportioned or measured and paid for by weight shall be furnished, erected and maintained by the Contractor or be certified, permanently installed commercial scales.
    - b. Scales shall be accurate to within one-half of one percent of the correct weight throughout the range of use. The Contractor shall have the scales checked under

- the observation of the Project Manager 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 one-tenth of one percent of the nominal rated capacity of the scale, but not less than one pound. The use of spring balances will not be permitted.
- c. Beams, dials, platforms and other scale equipment shall be so arranged that the operator and the City's inspector can safely and conveniently view them.
  - d. Scale installations shall have suitable weights or devices available for testing the weighing equipment.
  - e. Scales must be tested for accuracy and serviced before use at a new site. Platform scales shall be installed and maintained with the platform level.
  - f. Scales "overweighing" (indicating more than correct weight) will not be permitted to operate and all materials received subsequent to the last previous correct weighing-accuracy test will be reduced by the percentage of error in excess of one-half of one percent.
  - g. In the event inspection reveals the scales have been "underweighing" (indicating less than correct weight), they shall be adjusted and no additional payment to the Contractor will be allowed for materials previously weighed and recorded.
3. The Project Manager may be present to witness the weighing and to check and compile the daily record of such scale weights; however, in any case, the Project Manager will require that the Contractor furnish weigh slips and daily summary weigh sheets. In such cases, a duplicate weigh slip or load slip for each vehicle weighed shall be furnished to the Project Manager at the point of delivery of the material.
- a. As a minimum, the weigh slips shall contain the following information:
    - 1) Contractor's name and contract number
    - 2) Supplier's name and location of material source
    - 3) Type of material
    - 4) Haul unit's unique identification number
    - 5) Empty weight (this should be checked three times per day)
    - 6) Full weight
    - 7) Weight of material hauled
    - 8) Scale operator's signature stating the weights are correct to within one percent of standard weights.
  - b. The loads shall be weighed prior to water being added.
4. If the material is shipped by rail, the certified car weights will be accepted provided that only actual weight of material will be paid for and not minimum car weight used for assessing freight tariff. Car weights will not be acceptable for material to be passed through mixing plants or material off loaded from rail cars and hauled to the jobsite by trucks from rail cars located off the worksite.
5. Trucks used to haul material being paid for by weight shall be weighed empty daily and at such additional times as the Project Manager may require. Each truck shall bear a plainly legible identification mark. The Project Manager may require the weight of the material verified by weighing empty and loaded trucks on such other scales as the he may designate.
6. When requested by the Contractor and approved by the Project Manager in writing, material specified to be measured by the cubic yard may be weighed and such weights will be converted to cubic yards for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the Project Manager and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

7. The Contractor shall comply with all legal load restrictions in the hauling of equipment or materials on public roads beyond the limits of the project. A special permit will not relieve the Contractor of liability for damage resulting from the moving of equipment or material.
- a. The operation of equipment or hauling loads that cause damage to structures, the roadway or any other construction will not be permitted. Hauling of materials over the base course or surface course under construction shall be limited by the Contractor to methods and equipment that will prevent damage to the pavement structure before the expiration of the curing periods. The Contractor shall be responsible for the repair of all damage and related expenses resulting from hauling equipment and construction operations.
  - b. If a vehicle's gross weight exceeds the legal limit, and the material transported by the vehicle is delivered to the project, the material and the scale ticket (certificate of correct weight) will not be accepted, except a 500 pounds tolerance will be allowed for overweight loads.
  - c. If a scale ticket from an overweight vehicle is inadvertently accepted and the material incorporated into the project, the Project Manager will adjust the price for the overweight load as follows:
    - 1) The pay item quantity represented by the amount of material in excess of the legal weight plus 500 pounds tolerance will not be paid for.
    - 2) A price reduction will be assessed for the overweight portion of the load based on the following schedule:

<u>Overweight (pounds)</u>	<u>Price Reduction (dollars)</u>
0 - 500	0
501 - 3,000	20
3,001 - 4,000	40
4,001 - 5,000	82
5,001 - 6,000	130
6,001 - 7,000	226
7,001 - 8,000	376
8,001 - 9,000	582
9,001 - 10,000	842
Over 10,000	870 plus \$164 for each 1,000 lbs., or fraction thereof, or 10,000 lbs.

8. Bituminous materials will be measured by the gallon or ton. Unless noted otherwise volume will be measured at 60 degrees Fahrenheit or will be corrected to the volume at 60 degrees Fahrenheit using ASTM D 1250 for asphalt or ASTM D 633 for tars. 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 bituminous material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work. When bituminous materials are shipped by truck or transport, net certified weights or volume subject to correction for loss or foaming will be used for computing quantities.

C. Measurement by Volumes

1. Measurement by in-place volume will be by the cubic dimension listed or indicated in the Schedule of Prices and Quantities. Volume measurements will be neat line as shown on contract documents, or if actual field measurements show that the volume is less than neat line, the actual volume will be used. Method of volume measurement shall be

by average end area method, with end areas taken at no greater than 100 feet apart or every major change in the cross section area, which ever occurs first, unless noted otherwise. The Contractor may request alternate methods subject to the approval of the Project Manager.

2. Material indicated to be measured by volume in the hauling vehicle shall be hauled in approved vehicles and measured therein at the point of delivery. Vehicles for this purpose may be of any size or type acceptable to the Project Manager provided that the body is of such shape that the actual contents may be readily and accurately determined and is water tight so that the volume can be measured by filling with water. All vehicles shall be loaded to at least their water level capacity, and all loads shall be leveled when the vehicles arrive at the point of delivery.

D. Measurement of Areas

1. Measurement of areas will be by the square dimension listed or indicated in the Schedule of Prices and Quantities and or Unit Price Items. Area measurements will be neat line as shown on contract documents or, if actual field measurements show that the area is less than neat line, the actual area will be used. All longitudinal measurements shall be horizontal unless noted otherwise. Method of square measurement will be as determined by the Project Manager.

E. Measurement of Linear Items

1. Linear measurement will be by the linear dimension listed or indicated in the Schedule of Prices and Quantities and/or Unit Price Items. Linear measurements will be neat line as shown on contract documents, or if actual field measurements show that the linear measurement is less than neat line, the actual linear measurement will be used. Method of linear measurement will be as determined by the Project Manager. Generally, items, components or work to be measured will be measured at the centerline of the item in place.

**1.03 FIELD MEASUREMENT FOR PAYMENT**

- A. The Contractor will compute all quantities of Work performed by the Contractor, including quantities of materials and equipment delivered to the site, for final payment purposes. Computed quantities are subject to check and review by the Project Manager. If errors are found, the Contractor shall correct them. If, in the opinion of the Project Manager, the errors are significant or frequent enough, the Project Manager may make the calculations with his own forces at the Contractor's expense. No payment will be made on that portion of an item containing calculation errors until the errors are corrected to the satisfaction of the Project Manager.
  1. The Contractor will show the actual measurements that are used to compute the quantities along with the formulas used. As requested by the Project Manager, the Contractor shall supply the Project Manager with computations and sketches indicating where measurements were taken and their relationship to the finished product.
- B. The Contractor will supply the Project Manager with an electronic copy and instruction manual of any computer programs used to calculate quantities. Any computer program used shall be executable on an IBM compatible computer with a 286, 386, 486 or Pentium processor. The Contractor shall also provide an electronic copy of the data files used to determine quantities.
- C. The Contractor shall take all measurements for payment purpose in the presence of the Project Manager in accordance with the provisions for measurement specified herein and in

Technical Specifications Section 01050.

**1.04 REJECTED MATERIALS**

- A. Quantities of material wasted or disposed of in a manner not called for under the contract, rejected loads of material including material rejected after it has been placed by reasons of the failure of the Contractor to conform to the provisions of the contract, material not unloaded from the transporting vehicles, material placed outside the lines indicated on the contract drawings or established by the Project Manager, or material remaining on hand after completion of the Work will not be paid for and such quantities shall not be included in the final total quantities. No compensation will be permitted for loading, hauling and disposing of rejected material.

**1.05 PAYMENT CONSIDERATIONS**

- A. Payment will be full compensation for furnishing all labor, materials, tools, equipment, transportation, services and incidentals as specified in the General Conditions, technical specifications, and contract drawings, and for performing all work necessary for completing the item or work classification including all incidental work.
- B. Full compensation for all expenses involved in conforming to the requirements for measuring materials shall be considered as included in the unit or lump sum prices paid for the materials being measured and no additional compensation will be permitted.

**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 01025**



## SECTION 01050

### LAYOUT OF WORK AND SURVEYS

#### PART 1 - GENERAL

##### 1.01 SCOPE

- A. This Section covers the procedures and accuracy requirements for survey services for layout of work and field measurement of work quantities to be determined by surveys.
- B. Before commencing any layout of work and surveys the Contractor shall give the Project Manager 48 hours written advance notice so that the Project Manager may witness such work.
- C. Reference Contract General Conditions, GC 317 and GC 318.

##### 1.02 SUBMITTAL

- A. Refer to Technical Specifications Sections 01300 and 01340 for the submittal process.
  - 1. Copies of original pages of field notes.
  - 2. Original field notebooks when filled and at end of contract.
  - 3. As-built measurements.

##### 1.03 REFERENCE POINTS, COORDINATE POINTS AND SECTION CORNER MONUMENTS

- A. Protect and preserve reference points, Denver International Airport (DIA) grid control points, benchmarks and section corner monuments. Coordinates shown on the drawings are based upon the DIA coordinate system unless noted otherwise.
- B. Report damaged or destroyed reference points, DIA grid coordinate points and benchmarks to the Project Manager.
  - 1. The Project Manager will reestablish damaged, moved, altered or destroyed reference benchmarks and coordinate points.
  - 2. If section corner monuments are damaged or destroyed during construction activities, such points shall be re-established pursuant to "Laws of the State of Colorado Regulating the Practice of Land Surveying" by a Professional Land Surveyor registered in the State of Colorado.
  - 3. If reference points, coordinate points or bench marks are damaged, moved, altered or destroyed by the Contractor, the City's cost of reestablishing such points shall be borne by the Contractor.
  - 4. The City will not be responsible for any increased costs or delays to the Contractor relating to reference points, DIA grid control points, or bench marks which are damaged, moved, altered or destroyed by the Contractor or its subcontractors, suppliers, agents or employees or other Contractors working on the site.
- C. Report alleged errors in reference points, DIA grid control points, or benchmarks promptly to the Project Manager.

1. Discontinue use of reference points, DIA grid control points, or benchmarks alleged to be in error until the accuracy of points can be verified or as directed.
  2. Claims for extra compensation for alteration or reconstruction allegedly due to errors in reference points, DIA grid control points, or benchmarks will not be allowed unless original reference points, DIA grid points and benchmarks still exist or substantiating evidence proving error is furnished by the Contractor, and unless the Contractor has reported such errors to the Project Manager as specified herein.
- D. The following are limitations and additional information on reference points, DIA grid control points and benchmarks.
1. The use of control monuments for construction surveying other than those shown on the contract drawings or furnished by or approved by the Project Manager is prohibited. Use of other monuments is at the Contractor's sole risk.
  2. Elevations are based upon mean sea level datum from NOAA-NGS, benchmark "R392", elevation 5271.518 feet.
  3. The DIA bench mark and coordinate point data as listed on the contract drawings or listed in the specifications are the only approved coordinate points and benchmarks for construction surveying.
  4. The basis of bearing of the grid system is NGS control points "Adams" and "King" per the North American Datum of 1927.

## **PART 2 - PRODUCTS (NOT USED)**

## **PART 3 - EXECUTION**

### **3.01 CONSTRUCTION LINES AND GRADES**

- A. The reference DIA coordinate points and benchmarks to be provided by the City are those shown on the drawings. Other control points and benchmarks may be provided to the Contractor at the discretion of the Project Manager.
1. The Contractor shall carefully preserve such points and shall be held responsible therefore. If it becomes necessary for the Contractor to remove or disturb a reference or DIA grid coordinate point or benchmark he shall notify the Project Manager before removing or disturbing said point. If, in the opinion of the Project Manager, stakes, monuments, marks or points are carelessly or willfully disturbed by the Contractor, the cost of replacing such stakes, monuments, marks or points shall be charged against the Contractor and shall be deducted from final payment for the Work.
- B. The Contractor shall make surveys and layouts as necessary to delineate the work. The Contractor shall make the surveys for the proper performance of the Work. As a part of such surveys, the Contractor shall 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 Project Manager as to their location, sufficiency and adequacy. However, such approval by the Project Manager shall not relieve the Contractor of his responsibility for the accuracy of his survey work.
- C. The Project Manager shall have the right to check surveys and layouts made by the Contractor prior to approving any of the Work. The Contractor shall give advance notice of not less than 48 hours to the Project Manager to enable such checking prior to placing any Work.

The Contractor shall furnish assistance as may be required for checking purposes when so requested by the Project Manager.

- D. The Contractor shall 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.
- E. The City may draw the Contractor's attention to errors or omissions in lines or grades, but the failure to point out such errors or omissions shall not give the Contractor any right or claim nor shall in any way relieve the Contractor of his obligations according to the terms of this contract.
- F. The Contractor's instruments and other survey equipment shall be accurate, suitable for the surveys required in accordance with recognized professional standards and in proper condition and adjustment at all times. Surveys shall be performed under the direct supervision of a Colorado licensed surveyor.
- G. Field Notes
  - 1. The Contractor shall record surveys in field notebooks. Copies of the original pages of such records shall be furnished to the Project Manager at intervals required by the Project Manager. Each field notebook shall be furnished to the Project Manager when filled or completed. Field notes shall be kept in the form and style shown in the book "Surveying Theory and Practice" by Davis, Foote, Anderson and Mikhail. At the option of the Project Manager, electronic data collectors may be used and copies of downloaded data on disk may be furnished. The data shall be in MS DOS ASCII format and may be used to supplement field books.
  - 2. Whichever method of note taking the Contractor starts with, he must use the same method throughout the contract duration. If the Project Manager finds errors in the field notes he will return them to the Contractor for correction and resubmission. This review does not relieve the Contractor from the responsibility of maintaining accurate survey data.
- H. The 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 Project Manager or his representatives at any time. The Contractor shall be responsible for any lines, grades or measurements that do not comply with specified or proper tolerances or which are otherwise defective and for any resultant defects in the Work. The Contractor will be required to conduct re surveys or check surveys to correct errors indicated by review of the field notebooks.

### **3.02 SURVEYS FOR MEASUREMENT FOR PAYMENT**

- A. When the specifications or the Project Manager require items in the Schedule of Prices and Quantities to be measured by surveying methods, the Contractor shall perform the surveys. All such surveys, including control surveys run for establishing the measurement reference lines, shall be performed in the presence of the Project Manager or his representative who will witness the surveying operation and who will sign the field notes or keep duplicate field notes, at the Project Manager's option. The Contractor will reduce the field notes and calculate final quantities for payment purposes. The note reductions and calculations will be given to the Project Manager upon request.

### **3.03 SURVEYING ACCURACY AND TOLERANCES IN SETTING SURVEY, LAYOUT AND**

### QUANTITY CALCULATION STAKES

- A. Control traverse field surveys and computations shall be performed to an accuracy and precision of at least 1:40,000.
- B. The tolerances generally applicable in setting survey stakes shall be as set forth in the CDOT Survey Manual, latest edition. Such tolerances shall not supersede stricter tolerances required by the drawings or specifications, and shall not otherwise relieve the Contractor of responsibility for measurements in compliance therewith.

### 3.04 AS-BUILT MEASUREMENTS

- A. As-built measurement for items that will be hidden or visible including all civil, mechanical, electrical, control work and all utilities that are placed in concrete, earth or behind walls shall be made by and under the direction of a Colorado licensed surveyor while the work is exposed and the measurements submitted to the Project Manager. Unless noted otherwise the measurements shall show the final location within +/- 3 inches of their actual horizontal and vertical location based upon DIA grid coordinates\*. Items located within or five feet beyond a building shall be referenced to building column lines and finish floor elevations. Special attention shall be paid to items requiring service, sensors, items with moving parts, access points and locations of junctions, elevation changes and directional changes. Survey notes must be supplied to the Project Manager prior to covering up the work or the work shall be considered defective.

- 1. \* DIA Vertical Datum (i.e., N6VD 29)

## 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 work request bid item.

**END OF SECTION 01050**

## SECTION 01051

### PROJECT COORDINATION

#### PART 1 - GENERAL

- A. Work specified in this Section includes coordination efforts which must be provided by the Contractor to ensure that work by others in the contract designated work area and adjacent areas does not negatively impact the Work and overall project.
- B. The construction schedule as specified in Technical Specifications Section 01310 shall reflect all interfaces and coordination efforts as specified in General Condition 701, Special Condition SC-6, Technical Specification Sections 01010, 01014, 01051, and 01650, and other related contracts and procurement documents.
- C. The Contractor will establish regular working relations with all contractors, tenants and the Airport Maintenance Department working in the same area and areas adjacent to the construction site. The Contractor will attend construction progress meetings as described in Technical Specification Section 01200 and will coordinate work as described therein.
- D. The Contractor will assign a member of his staff to act as a coordinator, who will work to coordinate the Contractor's work with other parties doing work or operating at the Denver International Airport site.

#### 1.02 COORDINATION WITH OTHERS

- A. Contractor shall coordinate and cooperate with others that may be in, near or in any way affected by the Contractor's operations. This coordination and cooperation shall include but not be limited to the following:
  - 1. Regular meeting (weekly or more often) with or on the subject of the needed coordination and cooperation.
  - 2. Construction schedule coordination.
  - 3. Staging area and access planning coordination. (to include employee shuttle routes)
  - 4. Deliveries
  - 5. Traffic control.
- B. When and where required, 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 some of the other groups, activities or contractors that will be working in the area of the project:
  - 1. Snow removal operations
  - 2. Parking operations and any other in or around the terminal
  - 3. Construction, removal and replacement of parking structure stairs
  - 4. Construction of multiple South Terminal expansion projects

#### PART 2 - PRODUCTS (NOT USED)

**PART 3 - EXECUTION (NOT USED)**

**PART 4 - MEASUREMENT**

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

**PART 5 - 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 01051**

## SECTION 01060

### REGULATORY REQUIREMENTS

#### PART 1 - GENERAL

##### 1.01 SUMMARY

- A. This Section identifies primary compliance with the State, City and County of Denver's regulatory requirements including:
  - 1. The Department of Aviation
  - 2. Colorado Department of Transportation
  - 3. Department of Public Works (including The Division of Wastewater Management)
  - 4. The standards which govern design and construction projects at Denver International Airport.
- 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.

##### 1.02 RELATED SECTIONS

- A. 01566 – Environmental Controls: for environmental and related permitting requirements.

##### 1.03 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 amendments addresses Airport Buildings and Structures.

##### 1.04 DENVER BUILDING DEPARTMENT

- A. For review and approval of all construction documents for compliance to the Denver building code:
  - City and County of Denver
  - Community Planning and Development
  - Building Inspection Division
  - 201 West Colfax Avenue, Dept 205
  - Denver, Colorado 80202
  - Telephone 720-865-2720
  - Fax 720-865-2880

##### 1.05 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
  - 745 W. Colfax Ave.
  - Denver, Colorado 80204
  - Telephone 720-865-2833

- 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. 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 above-ground storage tanks (AST) and underground storage tanks (UST) for both temporary tanks and permanent facility installations.
- 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). Any questions can be addressed to the Fire Prevention Bureau between 6:30 AM and 9:00 AM Monday-Friday at 720-913-8242 or -8237.

## **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 Project Manager.
- C. At the time of request for Substantial Completion, the Contractor shall forward to the 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 01060**

## SECTION 01070

### ABBREVIATIONS AND SYMBOLS

#### PART 1 - GENERAL

##### 1.01 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:

ALA	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
AFI	Air Filter Institute
AGTS	Automated Ground Transportation System
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
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
DFD	Denver Fire Department
DIA	Denver International Airport

DOT	United States Department of Transportation
DOR	Designer of Record
DWB	Denver Water Board
EEO	Equal Employment Officer or Equal Employment Opportunity
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
IAPMO	International Association of Plumbing and Mechanical Officials
IBR	Institute of Boiler and Radiator Manufacturer's
ICBO	International Conference of Building Officials
ICEA	Insulated Cable Engineers Association
IEEE	Institute of Electrical and Electronic Engineers
IES	Illuminating Engineering Society
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
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)
NCR	Nonconformance Report

NEC	National Electric Code (NFPA 70)
NECA	National Electric Contractors Association
NEMA	National Electrical Manufacturer's Association
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 (DIA)
QA	Quality Assurance
QC	Quality Control
RAR	Remedial Action Request
RFI	Request for Information
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
UBC	Uniform Building Code (published by ICBO)
UL	Underwriters Laboratories, Inc.
UMC	Uniform Mechanical Code (published by ICBO)
UPC	Uniform Plumbing Code (published by ICBO)
USC	United States Code
WBS	Work Breakdown Structure

**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 01070**

## SECTION 01091

### REFERENCE STANDARDS

#### PART 1 - GENERAL

##### 1.01 WORK INCLUDED

- A. This Section contains a summary of industry-accepted and recognized standards published by trade associations, government and institutional organizations which 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, plus 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 Project Manager an agent of the publishing agency, nor does it obligate the Project Manager to perform inspections required by or to enforce rules or regulations contained in the reference standards.

##### 1.02 REFERENCES

- A. RELATED DOCUMENTS: General Conditions, Special Conditions, and applicable provisions of Division 1 sections apply to this Section.

#### PART 2 - PRODUCTS (NOT USED)

#### PART 3 - EXECUTION

##### 3.01 SCHEDULE OF REFERENCE STANDARDS

- A. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO), 444 North Capitol Street, NW, Suite 249, Washington, DC 20090
  - AASHTO M 36 Corrugated Metal Pipe
  - AASHTO M216 Standard Specification for Lime for Soil Stabilization
  - AASHTO T26 Standard Method of Test for Water to be Used in Concrete
  - AASHTO T84 Specific Gravity and Absorption of Fine Aggregate
  - AASHTO T85 Specific Gravity and Absorption of Coarse Aggregate

AASHTO T103 Freeze-Thaw

AASHTO T219 Standard Methods of Testing Lime for Chemical Constituents and Particle Sizes

B. AMERICAN CONCRETE INSTITUTE (ACI) P.O. Box 19150, Redford Station, Detroit, MI 48219, (313) 372-9800

ACI 211.1 Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete

ACI 211.2 Standard Practice for Selecting Proportions for Structural Lightweight Concrete

ACI 301 Specifications for Structural Concrete for Buildings

ACI 304 Recommended Practices for Measuring, Mixing, Transporting and Placing Concrete

ACI 304.2R Placing Concrete by Pumping Methods

ACI 305R Hot Weather Concreting

ACI 306R Cold Weather Concreting

ACI 315 Details and Detailing of Concrete Reinforcement

ACI 318 Building Codes Requirements for Reinforced Concrete

(NOTE: Reference to ACI 318 may be limited to more stringent requirements of local building code)

C. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) 1916 Race Street, Philadelphia, PA 19103, (215) 299-5585

ASTM A 27 Mild to Medium Strength Carbon - Steel Casting for General Application

ASTM A 36 Structural Steel

ASTM A 47 Malleable Iron Castings

ASTM A 82 Specification for Steel Wire, Plain, for Concrete Reinforcement

ASTM A 123 Hot-dip Galvanizing

ASTMA 184 Specification for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement

ASTM A 185 Specifications for Steel Welded Wire, Fabric, Plain, for Concrete Reinforcement

ASTM A 283 Low and Intermediate Tensile Strength Carbon Steel Plates, Shapes and Bars



ASTM A 615	Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
ASTM A 706	Specification for Low-Alloy Steel Deformed Bars for Concrete Reinforcement
ASTM C 25	Method for Chemical Analysis of Limestone, Quicklime and Hydrated Lime
ASTM K 29	Unit Weight of Aggregate
ASTM C 31	Methods of Making and Curing Concrete Test Specimens in the Field
ASTM C 33	Specification for Concrete Aggregates
ASTM C 39	Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C 42	Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
ASTM C 76	Reinforced Concrete Culvert, Storm Drain and Sewer Pipe
ASTM C 88	Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C 94	Specification for Ready Mixed Concrete
ASTM C 109	Mortar Bar Test for Cement
ASTM C 110	Methods for Physical Testing of Quicklime, Hydrated Lime and Limestone
ASTM C 117	Materials Finer than 75 mm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C 131	Resistance of Abrasions of Small Size Coarse Aggregate by Use of the Los Angeles Machine
ASTM C 136	Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C 138	Unit Weight, Yield and Air Content of Concrete
ASTM C 143	Test Method for Slump of Portland Cement Concrete
ASTM C 150	Specification for Portland Cement
ASTM C 171	Specification for Sheet Materials for Curing Concrete
ASTM C 172	Method of Sampling Fresh Concrete
ASTM C 173	Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method

ASTM C 231	Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C 260	Specification for Air Entraining Admixtures for Concrete
ASTM C 309	Specification for Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C 443	Joints for Circular Concrete Sewer and Culvert Pipe Using Rubber Gaskets
ASTM C 494	Specification for Chemical Admixtures for Concrete
ASTM C 595	Blend Hydraulic Cements
ASTM C 618	Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete
ASTM C 655	Reinforced Concrete D Load Culvert, Storm Drain and Sewer Pipe
ASTM C 789	Precast Reinforced Concrete Box Sections for Culverts, Storm Drains and Sewers
ASTM C 803	Test Method for Penetration Resistance of Hardened Concrete
ASTM C 805	Test Method for Rebound Number of Hardened Concrete
ASTM C 977	Specification for Quicklime and Hydrated Lime for Soil Stabilization
ASTM D 75	Sampling Aggregate
ASTM D 422	Test Method for Particle Size Analysis of Soils
ASTM D 516-88	Standard Test Method for Sulfate Ions in Water
ASTM D 693	Crushed Stone, Crushed Slag and Crushed Gravel for Dryer Water-Bound Macadam Base Courses and Bituminous Macadam Base and Surface Courses of Pavements
ASTM D 698	Test Method for Moisture Density Relations of Soils and Soil- Aggregate Mixtures Using 5.5-lb. Hammer and 12-Inch Drop
ASTM D 751	Burst Strength
ASTM D 1556	Test Method for Density of Soil in Place by the Sand-Cone Method
ASTM D 1557	Test Method for Moisture Density Relations of Soils and Soil- Aggregate Mixtures Using 10-lb. Hammer and 18-Inch Drop
ASTM D 1682	Ultraviolet Resistance Grab Tensile Strength Grab Tensile Elongation Toughness
ASTM D 1751	Specification for Preformed Expansion Joint Fillers for Concrete Paving

- and Structural Construction
- ASTM D 1752 Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction
- ASTM D 2167 Test Method for Density of Soil in Place by the Rubber-Balloon Method
- ASTM D 2216 Method for Laboratory Determination of Water (Moisture) Content of Soil, Rock and Soil Aggregate Mixtures
- ASTM D 2363-78 Trapezoid Tear Strength
- ASTM D 2419 Sand Equivalent Value of Soils and Fine Aggregate
- ASTM D 2487 Test Method for Classification of Soils for Engineering Purposes
- ASTM D 2922 Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Method
- ASTM D 3017 Test Method for Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
- ASTM D 3665 Random Sampling of Paving Materials
- ASTM D 4253 Test Method for Maximum Index Density of Soils Using Vibratory Table
- ASTM D 4318 Test Method for Liquid Limit, Plastic Limit and Plasticity Index of Soils
- ASTM D 4397 Specification for Polyethylene Sheeting for Construction, Industrial and Agricultural Applications
- ASTM D 4546 Test Method for One-Dimensional Swell or Settlement Potential of Cohesive Soils
- ASTM E 329 Recommended Practice for Inspection and Testing Agencies for Concrete, Steel and Bituminous Materials as Used in Construction
- ASTM F 477 Elastomeric Seals (Gaskets) for Joining Plastic Pipe
- ASTM F 758 Smooth-Wall Poly (Vinyl Chloride) (PVC) Plastic Underdrain Systems for Highway, Airport and Similar Drainage
- D. D.AMERICAN WELDING SOCIETY (AWS), 550 NW LeJeune Road, Miami, FL 33135AWS Code for Welding in Building Construction (Structural Welding Code).
- E. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)933 N. Plum Grove Road, Schaumburg, IL 60195, (312) 490-1700
- Manual of Standard Practice
- F. COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) Division of Administration, Office of Bid Plans, 4201 E. Arkansas Avenue, Denver, CO 80222

Standard Specifications for Road and Bridge Construction (latest edition) Colorado  
Standard Plans, M&S Standards

- G. FEDERAL HIGHWAY ADMINISTRATION (FHWA) Superintendent of Documents, US  
Government Printing Office, Washington DC, 20402

Manual of Uniform Traffic Control Devices (latest edition)

#### **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.

**END OF SECTION 01091**

## SECTION 01095

### DEFINITIONS AND CONVENTIONS

#### PART 1 - GENERAL

##### 1.01 SUMMARY

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

##### 1.02 REFERENCES

- A. Related Documents: General Conditions, Special Conditions, and applicable provisions of Technical Specifications Division 1 apply to this Section.

##### 1.03 DEFINITIONS

- A. 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 Project Manager" and require that an instruction be obtained by the Contractor from the 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.
  9. **Or equal, or approved equal:** Refers to products which, in the opinion of the Project Manager, are similar in all respects to products specified by proprietary brand name. (Refer to Section 01630 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 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."

#### 1.04 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 16-Division "MASTERFORMAT" published by the Construction Specifications Institute.
  - b. The Standard Specifications for Road and Bridge Construction published by CDOT.
  - c. The alpha-numeric 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 his responsibilities to divide the Work among subcontractors or to establish the extent of work to be performed by any trade.
2. Neither the Owner nor the 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 Owner, Contractor, and 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 01070; 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 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.

**END OF SECTION 01095**

## SECTION 01110

### CONSTRUCTION SAFETY

#### PART 1 - GENERAL

##### 1.01 WORK INCLUDED

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

##### 1.02 RESPONSIBILITY

- A. The General Conditions make it clear that all safety precautions during the construction process are the responsibility of the Contractor. The Contractor is responsible for the health and safety of his employees, agents, subcontractors and their employees, 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; and for any person in the area around the worksite. The Contractor shall take all necessary and reasonable precautions and actions to protect all such persons and property.
- B. 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 Project Manager or his authorized representatives shall relieve the Contractor of any of its obligations and duties hereunder.

##### 1.03 SUBMITTAL

- A. Refer to Technical Specifications Section 01300 and 01340 for the process. A safety plan 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. NOTE: NO PROGRESS PAYMENT SHALL BE APPROVED UNTIL THE SAFETY PLAN HAS BEEN ACCEPTED BY THE PROJECT MANAGER.

##### 1.04 PROJECT MANAGER'S REVIEW

- A. The Contractor shall provide six copies of its safety program to the Project Manager for review at least ten days before on-site construction begins. 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 safety program, submit one electronic file in the form of a security-free, fully bookmarked PDF file compatible with Adobe Acrobat 6.0 or newer and one body hard copy of the following information for acceptance by the Project Manager prior to construction:
    - a. Name of the Contractor's site safety representative.
    - b. 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.
    - c. 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.
    - d. 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.

- e. How injuries or accidents will be handled including samples of the forms used to report injuries or accidents.
  - f. 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.
  - g. 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.
  - h. 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.
  - j. How snow and ice will be removed by the Contractor in his project area.
  - k. How concrete forms will be anchored to ensure their stability, including calculations showing that the forms will safely hold the maximum construction loads.
  - l. How flammable materials will be stored and handled, and how any spills will be cleaned up and removed for disposal.
  - m. What system will be used to prevent fires, and if fires do occur who will be trained to fight them. Also what fire fighting equipment will the Contractor have available and how will this equipment's condition be monitored.
  - n. How materials will be received, unloaded, stored, moved and disposed of.
  - o. How personnel working above ground level will be protected from falling.
  - p. How people working underneath work will be protected.
  - q. What will be done to protect personnel in case of severe weather.
  - r. How adequate lighting will be provided and monitored.
  - s. How air quality will be monitored and personnel removed or protected from air that is hazardous for humans.
  - t. 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.
- B. Prior to the start of any work by a contractor or subcontractor employee, the Contractor shall provide the 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.

## **PART 2 - PRODUCTS**

### **2.01 CONTRACTOR'S SAFETY PLAN**

- A. Provide a Contractor's Safety Program as described in Part 1 of Technical Specifications Section 01110.

## **PART 3 - EXECUTION**

### **3.01 IMPLEMENT CONTRACTOR'S SAFETY PLAN**

- A. Implement the approved Contractor's Operational Safety Plan as described in Part 1 of this

Technical Specifications Section 01110. Technical Specifications Section 01110.

- B. If the Contractor experiences lost time or an 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.
- C. 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 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. Six copies of this report shall be submitted to the DIA Project Manager.
  - 2. The Contractor shall immediately begin implementing the recommendations.
  - 3. A weekly report shall be submitted by the Contractor on the status of the implementation of the recommendations.
  - 4. Failure to comply with these requirements is a basis to withhold a portion of progress payments.

#### **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 01110**

## SECTION 01200

### PROJECT MEETINGS

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

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

##### 1.02 OTHER MEETINGS

- A. The Contractor will be advised of times, dates and places of contract meetings.

#### PART 2 - PRODUCTS (NOT USED)

#### PART 3 - EXECUTION

##### 3.01 PRECONSTRUCTION MEETING

- A. A Preconstruction Meeting will be scheduled by the City 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 Superintendent and Quality Control Representative(s) shall attend this meeting.
- B. The Project Manager will distribute a notice of this meeting, along with an agenda of the subjects to be addressed.
- C. The Project Manager will explain and discuss the responsibilities and authorities of the City, the Designer, and the Project Manager's organization.
- D. The Project Manager will provide highlights of the following information at this meeting:
  - 1. Equal Employment Opportunity (EEO), Minority Business Enterprise (MBE) and Women Business Enterprise (WBE) requirements.
  - 2. Insurance, laws, codes, traffic regulations and permit requirements of public agencies and their regulations.
  - 3. Procedures for processing change orders.
  - 4. Procedures for submitting shop and working drawings, product data and samples.
  - 5. Monthly pay estimate cutoff dates.
  - 6. Payment procedures.
  - 7. Request for information procedures.
  - 8. Communication procedures.
  - 9. Contractor-required Daily Report showing the quantitative progress of work, the use of

men, material and equipment, problems, potential delays, weather, shift, down equipment, material and equipment received and information received from the City. Daily reports will be submitted to the Project Manager within 48 hours of start of work. Daily Reports are required every day, including weekends and holidays.

10. Scheduling and coordination requirements.
  11. Quality control/assurance procedures.
  12. Environmental requirements and permits.
  13. As-built documents.
  14. Project closeout requirements.
- E. The Contractor will introduce the Contractor's representatives and briefly describe each person's responsibilities. The Contractor will provide the following:
1. A list of all subcontractors.
  2. Office, storage areas and construction area layouts, along with temporary easements.
  3. Safety, first aid, emergency actions and security procedures including the name of the Contractor's insurance company.
  4. 60 day preliminary schedule.
  5. Sequence of Work.
  6. Construction methods and general worksite layout and haul plan.
  7. Housekeeping procedures. Include a written plan for dealing with and preventing FOD (Foreign Object Damage).
  8. The Contractor's general erosion and sedimentation control plans, noise, hazardous material, air and water pollution control plans and Quality Control Plan.
  9. Coordination and notification for utility work.
  10. The Contractor's procedures to coordinate its work with the work of other contractors and its procedures for sharing access to the worksite.
  11. Deliveries and priorities of major equipment.
  12. Submittal Schedule
- F. Explanations provided by the City 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 Project Manager to promote the competent and timely execution of the contract.
- B. The meetings will be held at the worksite or at a location selected by the Project Manager. Meetings will be chaired by the Project Manager or the Project Manager's representative.
- C. The Contractor's personnel, as listed in Technical Specification Section 01200, 3.01.A, shall attend unless otherwise agreed by the Project Manager.
- D. The Project Manager will be responsible for publishing minutes of the meetings.

- E. At a minimum, the following items will be addressed at each meeting. The items addressed in the meeting do not waive notification or submittal requirements as required elsewhere in the contract.
1. Safety: Contractor shall report any safety issues
  2. Quality Control
    - a. The Contractor's Quality Control representative shall present and review all RAR's, CCR's, and NCR's issued and the status of each item.
    - b. The Contractor's Quality Control Representative shall present and discuss the Independent Testing Agency weekly test report and/or testing schedule.
    - c. The Contractor's Quality Control representative shall report on inspections by other agencies and any follow-up activity required.
    - d. The Project Manager will present and discuss issues regarding quality control.
  3. Quality Assurance
    - a. The Project Manager will present and discuss issues regarding quality assurance.
  4. Design activities: open discussion
  5. Shop drawings/submittals
    - a. The Contractor shall provide four copies of and review the Contractor's submittal schedule and provide any updated information and/or changes to the schedule.
    - b. The Contractor shall provide information on the status of submittals requiring re-submittal.
    - c. The Contractor shall review any accepted submittals that the Contractor plans to re-submit with changes.
  6. Construction activities: Open discussion to include coordination items with other Contractors and or agencies.
  7. Schedule
    - a. The Contractor shall provide to the Project Manager four copies of the Contractor's three week look-ahead schedule and review at the meeting the items on the schedule. The schedule shall be in bar chart format based on the approved CPM, and shall include dates of testing activities, anticipated dates of inspection by DIA and other agencies, items in progress, percentage of completion of items, responsible subcontractor for the items.

#### **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 multiplier or work request bid item.

**END OF SECTION 01200**

## SECTION 01300

### SUBMITTALS

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. The Work specified in this Section summarizes the requirements for the submittal of documents to the City that are defined in these Specifications. It also describes the procedures for "supplemental" submittals.

#### PART 2 - PRODUCTS

##### 2.01 SUBMITTAL SCHEDULE

- A. The Contractor shall provide a submittal schedule within 7 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 updated every two weeks by the Contractor and submitted with the progress payment request.
- C. One electronic submittal submitted on a single CD-ROM or DVD-ROM.

##### 2.02 ELECTRONIC SUBMITTALS

- A. All submittals shall be delivered to the DIA Project Manager in electronic format.
1. Acceptable electronic formats
    - a. Adobe Acrobat 8.0 or newer. All files shall be fully compatible with Adobe Acrobat 8.0. File 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 project manager or required by individual spec sections:
      - a. Microsoft Office 2007 or newer. All files shall be fully compatible with Microsoft Office 2007.
      - b. 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.
      - c. Other files pre-approved by the DIA Project Manager.
    3. Electronic file names: Each electronic document shall have a unique file name. File name convention shall be as follows: CEXXXXX-AAA-BBBBB-CCCRZ
      - a. XXXXX = DIA contract number

- b. AAA = sequential submittal number starting at 001.
- c. BBBBB = specification section containing submittal requirements
- d. CCC = sequential specification submittal number starting at 001.
- e. RZ = sequential revision number. RZ not required on initial submittals.
- f. Example A: "CE52006-005-01370-002", five submittals have been logged overall with two submittals made to specification section 01370.
- g. Example B: "CE52006-009-01370-002R3, nine submittals made overall and three revisions to submittal 01370-002.

### 2.03 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 City or the Designer of Record may indicate the action taken.
- C. Make submissions sufficiently in advance so that the City 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 City.
- E. Accompany submittal documents with DIA transmittal form CM-30 (refer to Technical Specification Section 01999) that 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 his 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.
    - 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 subnumber.

- F. The Contractor shall at the time of submission describe variations from the contract documents in writing, separate from the submittal document. If the 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 City.
- H. The form and quality of submittal documents shall comply with Technical Specifications Section 01340.

## 2.04 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 3 - EXECUTION

### 3.01 CONTRACTOR'S REVIEW

- A. The Contractor shall review submittal documents, stamp and sign as reviewed and approved as complying with contract documents prior to submission to the City.

### 3.02 CITY REVIEW

- A. Submittal documents will be reviewed by the City, the designer and the Project Manager for conformance to requirements of the contract drawings and specifications. Review of a separate item will not constitute review of an assembly in which the item functions. The City will withhold approval of submittals that depend on other submittals not yet submitted. Review and acceptance will not relieve the Contractor from his responsibility for accuracy of submittals, 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.
- B. The City, the designer, and/or the 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. **A - ACCEPTED** is an approval, and means that the illustration and description appears to conform to the respective requirements of the contract documents.
  - 2. **B - ACCEPTED AS NOTED** is an approval, and means that the illustration and description will conform to the respective requirements of the contract documents after changes in recognition of the reviewer's comments. Submittals so marked need not be resubmitted.



3. **C - REVISE AND RESUBMIT** means that the submittal is unacceptable and must be revised and resubmitted.
4. **E - NOT ACCEPTED** means that the submittal is not approved and that a new submittal in accordance with the contract documents shall be made.
5. **F - RECEIPT ACKNOWLEDGED**, means an item is received by the Project Manager but no review was made. This mark is for use in resubmitting items that were previously Accepted as Noted and the Contractor has incorporated the notes and wants the Project Managers' staff to have the same material that the Contractor's field staff is using.

### 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 City'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 City's review and acceptance of submittals containing variations unless the City expressly approves the deviation in writing, in which the City describes the variation.
- D. The Contractor shall maintain a file of all approved submittal documents at the worksite. The complete file of approved submittal documents shall be turned over to the City 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 01300**

## SECTION 01310

### SCHEDULE (LONG-DURATION PROJECT)

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. This Section specifies the preparation of a preliminary schedule, construction schedule, related narratives and monthly progress reports, all encompassing complete performance of contract requirements.
- B. The Contractor shall schedule and coordinate the work of all of its subcontractors and suppliers including their use of the worksite. The Contractor shall keep the subcontractors and suppliers informed of the project construction schedule to enable the subcontractors and suppliers to plan and perform their work properly.
- C. The Contractor shall, in accordance with the requirements of the technical specifications, submit a construction schedule that shall provide for the expeditious and practicable execution of the Work.
- D. The construction schedule for the performance of the Work shall be a Critical Path Method (CPM) system in bar chart format, unless an alternate system is specifically identified in the technical specifications, with reasonable detail including a time scaled network and computer printout as more fully detailed in the technical specifications.
- E. Float or slack is defined as the amount of time between the early start date and the late start date or the early finish date and the late finish date of any activities in the schedule. Float or slack is not time for the exclusive use or benefit of either the Contractor or the City.
- F. The Contractor shall submit a monthly progress report and schedule update in accordance with the scheduling provisions of the technical specifications.
- G. The Contractor shall complete the Work within the contract time and in accordance with the most recent schedule submittal that has been approved in writing by the Project Manager.

##### 1.02 PLANNING

- A. The schedule shall show the total contract time, including project milestones, as indicated in the Special Conditions or elsewhere in the contract documents.
- B. The Contractor shall prepare a work plan to complete the work within the contract time and complete those portions of work relating to each milestone date and other contract requirements. The Contractor shall generate a computerized Critical Path Method (CPM) schedule for the Work utilizing the Precedence Diagram Method (PDM) in Gantt Chart view. The computerized format shall be compatible with the City's Primavera system Primavera P6. The Schedule shall be submitted to the Project Manager electronically in PDF format and on a CD in a dynamic Primavera (P6 compatible) format which will allow review and manipulation of any part of the schedule. The schedule activities shall be resource loaded showing labor man hours, major construction equipment by type, and value of the work. The value of the work shall summarize each pay item shown in the Schedule of Values and balance to their amount.

- C. In addition to the construction activities the schedule shall include activities for furnishing materials and equipment and vendor shop drawing preparation. The construction schedule, a supporting narrative, and overall progress curve shall be submitted for approval within 7 days after Notice to Proceed. The overall progress curve will indicate planned progress monthly from start to finish of the project. The progress curve will be updated monthly with actual progress. Within 30 days the City will respond with approval or direction to revise and resubmit within ten days. Failure of the Contractor to have a construction schedule approved by the City will be considered cause for withholding progress payment(s).
- D. To the extent that the construction schedule or any revisions thereof contains anything not jointly agreed upon in writing, or fails to show anything jointly agreed upon in writing, it shall not be considered to have the approval of the City. Failure to include any work item required for performance of this contract shall not excuse the Contractor from completing all work within applicable completion dates, regardless of the City's approval of the schedule.
- E. Failure of the Contractor to comply with this Section will be considered cause for withholding progress payment(s) or termination for default.

### 1.03 SUBMITTALS

- A. Refer to Technical Specifications Section 01300 for submittal procedures. Submit the following as indicated:
  - 1. Preliminary schedule (with narrative) at Preconstruction Meeting
  - 2. Construction schedule (with narrative and progress curve)
  - 3. Monthly progress report (with narrative and updated progress curve)
  - 4. Construction schedule change request (as needed)
  - 5. As built construction schedule.

## PART 2 - PRODUCT

### 2.01 PLOT AND REPORT FORMAT

- A. Preliminary and Construction Schedule formats shall contain a title block with a minimum 18-point font showing:
  - 1. Contractor's name
  - 2. Contract number and title
  - 3. Data date
  - 4. Symbol definitions
- B. Schedules shall contain a time line at the top.
- C. The Activity Table (Layout) shall include at a minimum the following columns:
  - 1. Activity ID
  - 2. Activity Name
  - 3. Original Duration
  - 4. Schedule % Complete
  - 5. Start

6. Finish
  7. Total Float
- D. A report shall accompany all schedules containing a list of all approved changes to the original approved (baseline) schedule.
- E. Reports shall be submitted electronically in PDF format, or as directed by the Project Manager.

### **PART 3 - EXECUTION**

#### **3.01 PRELIMINARY SCHEDULE**

- A. The Contractor shall prepare a preliminary schedule covering the first 60 calendar days of the contract. This preliminary schedule shall be submitted at the Preconstruction Meeting and shall be accompanied by a narrative description of the work plan. Within 14 days, the City will respond with acceptance or direction to revise and resubmit within ten days.
- B. The preliminary schedule shall show all significant work tasks that occur in the first 60 days, including planning, mobilization, shop submittals and approval time, procurement, fabrication and construction. It shall identify work items or milestones that affect or are affected by the City, other Contractor's work, utilities and other third parties and it shall list major data submittals required by the contract.
- C. The preliminary schedule shall be accompanied by a narrative describing the Contractor's approach to mobilization, procurement and construction during the first 60 days. The narrative shall elaborate on the basis of durations, production rates, and major equipment to be used, and shall identify all major assumptions used to develop the schedule.
- D. In lieu of the Preliminary Schedule the Contractor may at his own discretion submit the Construction Schedule at the Preconstruction Meeting. If the Construction Schedule is submitted in lieu of the Preliminary Schedule, the City will respond within 30 days with acceptance or direction to revise and resubmit within 10 days.

#### **3.02 CONSTRUCTION SCHEDULE**

- A. The construction schedule shall be a computerized CPM schedule utilizing the PDM formatted in Gantt Chart View that includes:
1. Work items identified in a Work Breakdown Structure (WBS) format that corresponds with the technical specifications.
  2. The order, sequence and interdependence of all significant work items including construction procurement, fabrication, testing, startup and inspection, and delivery of critical or special materials and equipment, submittals and approvals of critical samples, shop drawings, procedures or other documents that could have a schedule impact.
  3. Work items by the City, other Contractors, utilities and other third parties that may affect or be affected by Contractor's activities.
  4. Proper referencing of all work items to identify applicable subcontractors or other performing parties.
  5. Work item durations shall not exceed 20 working days. No more than 25 percent of the work item may be on the critical path.

6. Work items shall be resource loaded to show the direct craft manhours estimated to perform the work including work by subcontractors and the value of the work.
  7. A narrative that explains the basis for the Contractor's determination of construction logic. It shall include estimated quantities and production rates, hours per shift, work days per week, and types, number and capacities of major construction equipment to be used and whether the Contractor plans to work weekends or holidays.
- B. The construction schedule shall be prepared to include the data for the total contract duration and the critical path shall be identified, including critical paths for interim completion dates. Scheduled start or completion dates imposed on the schedule by the Contractor shall be consistent with contract milestone dates. Milestone events shall be the schedule dates specified in the Special Conditions and shall be prominently identified and connected to the appropriate work item, denoting its start or completion. Work items related to any interim milestone shall be coded for that milestone.
- C. The Contractor shall submit the following documents to the City upon completion of preparation of the construction schedule:
1. A time phased CPM schedule utilizing the PDM showing all logic ties and the Gantt Chart view on a CD and an electronic copy in PDF format.
  2. A physical progress curve showing either manpower or other appropriate key contract items derived from the construction schedule approved by the project manager and against which physical progress performance will be measured for schedule and payment purposes. The physical progress curve will indicate planned progress monthly from start to finish of the project.
  3. The narrative described in Technical Specifications Section 01310-3.02.A.7.

### 3.03 PROGRESS REPORTING

- A. The Contractor shall submit a monthly progress report at the end of each month following the Notice to Proceed. At the end of each month, the Contractor and Project Manager shall agree on the progress of the work and the Contractor shall update the construction schedule accordingly. The updated construction schedule is a prerequisite to the submittal of the Contractor's application for progress payment. The schedule shall be made in accordance with Technical Specifications Section 01310-3.02. This review does not constitute an approval of the construction schedule and shall not be used for the purposes of modifying the initially approved construction schedule.
- B. The Contractor shall submit the monthly progress report consisting of a written narrative, an updated schedule and a physical progress curve. This report will be reviewed in a meeting between the Contractor and Project Manager.
1. The narrative report shall describe overall progress of the work, provide a critical path analysis, discuss significant problems with proposed corrective action, and show the status of major changes and any other changes in sequence of the work.
  2. A Gantt chart schedule shall be provided showing the Contractor's completion status (progress) on each work item along with logic ties and formats described in Technical Specifications Section 01310-3.02.C.1.
  3. The physical progress curve shall be updated to show actual progress.
- C. If the latest completion time for any work item does not fall within the time allowed by the construction schedule, the sequence of work and/or duration shall be revised by the

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 milestones will be met. 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.

### 3.04 SCHEDULE CHANGES

- A. The Contractor's request for construction schedule changes shall be made on the latest approved construction schedule and shall be accompanied by a narrative description and justification for the change and shall be submitted in accordance with the General Conditions Title 1105 on changes in time. Minor revisions submitted at monthly progress review meetings are not considered as changes in this context.
- B. The construction schedule may be changed when one or more of the following occur:
  - 1. When a change order significantly affects the contract completion date or sequence of work items.
  - 2. When the Contractor elects to change the sequence or duration of work items affecting the critical path.
  - 3. When the City directs a change that affects a milestone date(s) specified in the Special Conditions or alters the length of a critical path.
- C. If, after submitting a request for change to the construction schedule, the Project Manager does not agree with the request, the Project Manager will schedule a meeting with the Contractor to discuss the differences. If a settlement cannot be reached on the change in the construction schedule or if the Contractor has failed to submit revisions to the network, the Project Manager has the option of providing suggested logic and/or duration times in all subsequent updating reports. The suggested logic and/or duration times will remain in effect until the change in the construction schedule is settled or until the logic and duration are superseded.
  - 1. If the Contractor has any objections to the data furnished by the Project Manager, he shall advise the Project Manager within ten days in writing, fully supporting the objections with a counterplan. The revisions suggested by the Project Manager shall be used for updating reports until the Project Manager approves the counterplan.
  - 2. If the Contractor does not submit a counterplan and data within ten days after the date of the Project Manager's suggested logic, the Contractor is deemed to have concurred with the Project Manager's suggested logic/duration time changes. The Project Manager's plan will be the basis of negotiations for any adjustment of the time and cost for performance of the Work.

### 3.05 CONTRACT EXTENSIONS

- A. If the 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 in the next monthly update of the schedule.
- B. The Contractor acknowledges and agrees that delays in work items which, according to schedule analysis, do not affect any milestone dates or the contract completion date shown

on the CPM network at the time of the delay will not be the basis for a contract extension.

**3.06 AS-BUILT CONSTRUCTION SCHEDULE**

- A. After all contract work items are complete, the Contractor shall submit an as built construction schedule showing actual start and finish dates for all work items and milestones.

**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 01310 (LP)**

## SECTION 01340

### SHOP AND WORKING DRAWINGS, PRODUCT DATA AND SAMPLES

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- 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 technical specifications sections.
  - 1. The Contractor shall submit all shop drawings, working drawings, product data and samples, as defined in Title 1 of the General Conditions, to the Project Manager in accordance with the requirements in the technical specifications. The Project Manager will return one copy of the shop drawings, working drawings and product data to the Contractor with a written transmittal within the time periods noted in the technical specifications.
- B. The Contractor shall not submit as shop drawings copies or reproductions of drawings issued to the Contractor by DIA.

##### 1.02 SUBMITTALS

- A. Refer to Technical Specifications Section 01300 for submittal procedures.
- B. All submittals shall be delivered to the DIA Project Manager in electronic format. All submittals must be of a consistent format (all Acrobat or all Word, etc). No combination of electronic file types will be allowed unless required by a specific specification section..
  - 1. Acceptable electronic formats
    - 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. Other files pre-approved by the DIA 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. 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 DIA 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 DIA File Control Numbering System available from the DIA Project Manager. All files shall contain the prefix



**CE10010.14.02.submittalnumber.specsection.item.revision.**

- a. SUBMITTALNUMBER attribute shall be obtained from the DIA Project Manager.
- b. SPECSECTION attribute shall be a five digit number corresponding to the specification section requiring submitted data.
- c. ITEM attribute will be a two digit number designating the corresponding submittal item number.
- d. REVISION attribute will be for revised and resubmitted submittals, an "R" followed by a number (IE: R3).

**C. Quantities**

1. One DVD-ROM or CD-ROM containing electronic files of each shop or working drawing.
2. One DVD-ROM or CD-ROM containing electronic files of manufacturer's standard schematic drawings.
3. One DVD-ROM or CD-ROM containing electronic files of manufacturer's calculations and manufacturer's standard data.
4. One DVD-ROM or CD-ROM containing electronic files of manufacturer's printed installation, erection, application and placing instructions.
5. Nine samples of each item specified in the various specification sections, unless otherwise specified.
6. One DVD-ROM or CD-ROM 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.

**D. Review**

1. Submittal review comments by the City 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 City's comments with appropriate responses and additional information.

**1.03 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 Technical Specifications Section 01630.

**1.04 QUALITY CONTROL**

- A. Shop drawings and record documents shall be prepared to a high standard of quality such as that set forth in MIL STD 100, ANSI Standard Drafting Manual Y14 or other equivalent specification defining equal drafting quality for microfilming.

**PART 2 - PRODUCTS**

**2.01 SHOP AND WORKING DRAWINGS**

- A. Prepare shop and working drawings on a reproducible sepia sheet size of 24 x 36 inches to a

scale large enough to easily depict and annotate each of the various items.

- B. 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 01300, paragraph 2.02.B.
- C. 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.

## 2.02 PRODUCT DATA

- A. Modify manufacturer's standard and/or schematic drawings to delete information which 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 which 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 specification 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.

## 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 mock ups at the worksite as specified in the several technical specifications sections and at locations acceptable to the 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.
- 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 his 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 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.

## PART 3 - EXECUTION

### 3.01 CONTRACTOR RESPONSIBILITIES

- A. Reference requirements of General Conditions Article 405.
- B. Verify field measurements, catalog numbers and similar data.

- C. The Contractor shall not start work for which submittals are required until a transmittal has been received by the Contractor showing acceptance or acceptance as noted by the Project Manager.
- D. Before making submittals ensure that products will be available in the quantities and at the times required by the contract.
- E. Submit final, corrected, reproducible sepias of contract and shop and working drawings showing the Work as actually installed, placed, erected and applied. Refer to Technical Specification Section 01700, Contract Closeout.

### **3.02 REVIEW BY THE CITY**

- A. One electronic copy of the marked-up shop and working drawing and one electronic copy of the product data will be returned to the Contractor by the Project Manager. Only the transmittal form, appropriately marked, 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 City.

## **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 multiplier for the division under which the work falls.

**END OF SECTION 01340**

## SECTION 01370

### SCHEDULE OF VALUES

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. The Work specified in this Section consists of preparing and submitting the Schedule of Values (“Schedule”) as referenced in the General Conditions. The Schedule will be built upon a breakdown of the Work using specification sections, the schedule of prices and quantities and/or milestones. 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, 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. Any contract allowances shall be included in the Schedule. The allowance is strictly controlled by the DIA Project Manager and the Contractor has no right to, or claim on these funds.

##### 1.02 RELATED DOCUMENTS

- A. General Contract Conditions, Title 9 Compensation
- B. Technical Specifications Section 01300 Submittals
- C. Technical Specifications Section 01340 Shop and Working Drawings, Product Data and Samples
- D. Technical Specifications Section 01999 Standard Forms

##### 1.03 SUBMITTAL

- A. The Schedule shall be submitted in a format approved by the 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. The Schedule shall address the subcontractor, fabricator or supplier furnishing the materials and or labor for each work item.
- C. Upon request by the City, the Contractor shall support values given with the data which 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.

#### **1.04 REVIEW AND RESUBMITTAL**

- A. If review by the City 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. Breakdown of the items used in the Schedule shall include costs as follows:
  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 his 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 worksite. The Schedule of Stored Material shall show 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 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 which 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 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.
- 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 Project Manager to ensure that the permanent material cannot be used on work other than this contract.

#### **3.04 ALLOWANCE AUTHORIZATION AND PAYMENT**

- A. The allowance is strictly controlled by the DIA Project Manager and the Contractor has no right to, or claim on these funds. Should the DIA Project Manager request a change to the Contract, the DIA Project Manager may at his discretion decide that a portion of the allowance may be used to fund the cost of the change.

### **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 01370**

## SECTION 01400

### CONTRACTOR QUALITY CONTROL

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. This Section identifies the Quality Control activities to be performed during all phases of the contract by the Contractor.
- B. The Contractor shall have in place his Quality Control Program as necessary to ensure that all materials and work are completed in compliance with contract documents. The Contractor is solely responsible for Quality Control with the exception of those tests and/or audits that may be conducted by the City as defined in the contract documents.
- C. Test schedules and/or testing requirements for materials used on this project are included in the technical specifications. Laboratory and field testing identified in the technical specifications shall be conducted by an Independent Testing Agency (ITA) retained by the Contractor.

##### 1.02 SUBMITTALS

- A. Refer to Technical Specification Section 01300 and Technical Specifications Section 01340, for submittal requirements.
- B. Quality Control Plan: Within 10 days after Notice to Proceed, the Contractor shall submit a Quality Control Plan for review and acceptance. Acceptance by the Project Manager does not relieve the Contractor of compliance with the contract requirements. The Contractor Quality Control Plan shall address the following as a minimum:
  - 1. Provide a general description of Quality Control monitoring to be performed until final acceptance by DIA. Include monitoring activities of Work and the worksite during times no construction activity is scheduled to take place.
  - 2. The Contractor shall designate an employee whose sole responsibility is quality control manager and is highly qualified in all phases of construction as it relates to this project. The designated individual shall have the authority to direct work changes required to bring the Work into conformance with contract requirements including stopping non-conforming work in progress.
  - 3. The Quality Control Plan shall address each technical specification division's requirements for quality control. The Contractor shall identify each item requiring submittal and approval/acceptance prior to installation of work. Also, the Contractor shall identify each item of work requiring testing by the independent testing agency.
  - 4. The Quality Control Plan shall address and establish controls and documentation format to ensure that items or materials that have been accepted through receiving inspection are used or installed. Identification and traceability shall be provided throughout all inspections, test activities and records. For stored items, provisions shall be made for the control of item/material identification, consistent with the expected duration and type of storage.
  - 5. Provide methodology of monitoring, testing and exercising of all equipment, valves and/or assemblies to ensure the Work installed is in proper working order.



6. The Contractor shall submit a list of suppliers and subcontractors. This 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 resubmitted as required.
  7. Provide emergency contact information including name, company, title, work phone number, home phone number and other means of contact. The Emergency Contact list shall include at least four individuals. The Emergency Contact list shall be maintained on a daily basis. In the event there is any change in any of the information, the Contractor shall forward the updated list to the Project Manager and to DIA Maintenance Control (303-342-2800). The Emergency Contact list shall include the project number, project title and date of issue.
- C. Daily Quality Control Report:
1. The Daily Quality Control Report shall be prepared daily on the form included in Technical Specifications Section 01999. The Contractor may add sheets of information to this form as required. The report shall address as a minimum the following: identify number of workers on site each day by trade, identify notifications and discussions with/by DIA Quality Assurance Inspectors and other agency inspectors, identify quality of work placed that day and any deviations and/or corrections required to bring the Work into conformance with the contract. Daily reporting shall be computerized or typed and contain an electronic signature. Reporting shall be transmitted to the project manager electronically.
  2. Submit one electronic copy of the Daily Quality Control Report to the Project Manager at the end of each work week. The report shall be signed by the Contractor's Quality Control Representative and the Contractor's Superintendent.
- D. Corrective Action Report (CAR)
1. Conditions adverse to quality will be reviewed by the Contractor to determine the cause and to recommend a corrective action that will preclude recurrence. The condition, its cause and the corrective action planned shall be reported to the Project Manager prior to implementation. Follow-up action shall be taken to verify implementation of the corrective action. The Contractor will document the corrective action and a copy of the Corrective Action Report (CAR) will be transmitted to the Project Manager.

### 1.03 DOCUMENTATION

- A. The Contractor shall not change or alter approved submittals, procedures, specifications, drawings or other pertinent documentation without the Project Manager's written authorization.
- B. All records and documents that are quality related shall be prepared, identified and maintained by the Contractor and shall be made available to DIA upon request. Records shall be protected from damage, deterioration or loss. A copy of the records and documents shall be maintained at the Work site at all times unless the Project Manager has approved other locations in writing. Retention time for all quality records shall be not less than three years from date of Final Acceptance of the contract.
- C. The Contractor shall maintain records at the actual worksite and at Contractor's office to show the inspection status of materials and items installed in order to ensure that the required inspections and tests have been performed in a timely and correct manner.

### 1.04 INSPECTIONS AND TESTS

- A. Inspections, tests and system shut down requests, conducted by persons or agencies other than the Contractor, shall not in any way relieve the Contractor of his responsibility and obligation to meet all specifications and the referenced standards. The Contractor's designated Quality Control Representative shall inspect the work and shall ensure the work complies with the contract requirements prior to any requests for inspection or testing.
- B. When the specifications, laws, ordinances, rules, regulations or orders of any public agency having jurisdiction require the Project Manager's surveillance of inspections or tests, the Contractor shall notify the Project Manager of the place, date and time 48 hours prior to the inspection and/or test. The Contractor shall be responsible for notifying and requesting inspection by other agencies including but not limited to the Denver Building Inspection Division, Denver Fire Department and Denver Water Department. Prior to request for other agency inspections, the Contractor shall meet and plan inspection times with the Project Manager and or the Project Manager's designated representative.
- C. Special inspections or tests may be required by the technical specifications, City, State and/or Federal Agencies in addition to those tests already performed. The Contractor shall notify the Project Manager at least 48 hours in advance of the additional inspections or tests.
- D. Quantities will be verified as defined in the Pre-Work Meetings.

#### 1.05 INSPECTION PLAN

- 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 contract drawings and specifications, the referenced codes and standards and the approved submittals:
  - 1. Prework Coordination: Prior to the start of construction work on the contract and prior 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 superintendent, Quality Control and Safety representative(s), the ITA representative, the DIA Project Manager and DIA inspectors. Supervisory, Safety and Quality Control, representatives of all applicable subcontractors will also attend. The Contractor's Quality Control Representative shall chair, prepare and distribute minutes of Quality Control meetings. Meeting minutes shall be electronically distributed within 24 hours of the meeting.
  - 2. The purpose of the meeting is to ensure that the Contractor's personnel have no misunderstandings regarding their safety and quality procedures as well as the technical requirements of the contract. The following items shall be presented and reviewed by the Contractor:
    - a. Contract requirements and specifications
    - b. Shop drawings, certifications, submittals and as-built drawings
    - c. Testing and inspection program and procedures
    - d. Contractor's Quality Control program
    - 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, security and environmental precautions to be observed
    - g. Any other preparatory steps dependent upon the particular operation
    - 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 weeks after the start of a new or changed operation, the Project Manager and/or the Project Manager's designated representatives 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:
  - a. Workmanship to established quality standards
  - b. Conformance to contract drawings, specifications and the accepted shop drawings
  - c. Adequacy of materials and articles utilized
  - d. Results of inspection and testing methods
  - e. Adequacy of as-built drawings maintained daily.
4. 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 Project Manager.
5. Follow-up Inspection: The Contractor's Quality Control representative will monitor the work to review the continuing conformance of the work to the workmanship standards established during the preparatory and initial inspections.
6. Completion Inspection: Forty-eight hours prior to the completion of an item or segment of work and prior to covering up any work, the Contractor will notify the 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 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.
7. Pre-Final Acceptance Inspection: Prior to requesting a Pre-Final Acceptance Inspection by DIA, 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 72 hours in advance. With the request shall come a list of any known deficiencies and when they will be corrected. If the list is too large or contains too many significant items, in the opinion of the Project Manager, no inspection will be held because of the incompleteness of the work.
8. The Project Manager will schedule the Pre-Final Acceptance Inspection and will prepare a list of deficient items (punch list) 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.
9. Final Acceptance Inspection: After the Contractor has completed all items on the Deficiency List (generated from the Pre-Final Acceptance Inspection) he shall request a Final Acceptance Inspection. The request shall be made in writing at least 72 hours in advance of the inspection. All areas must be cleaned and ready for turnover prior to this inspection. The 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 Project Manager.

#### **1.06 SAMPLES**

- A. The Contractor shall maintain at the worksite a copy of all samples submitted and accepted by DIA. Samples shall be made available to the designer or the Project Manager's designated representatives for review and comparison in the field. The Project Manager prior to use on the project must accept all items and materials.
- B. The installed work will be compared to the samples and if any of the work is not of the same quality, material, finish, color, texture or appearance as the sample, that portion that is not the same will be considered defective and in nonconformance.
- C. Contractor selection of samples will only be considered if taken at random. The Contractor shall permit representatives of DIA 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.
- D. The Contractor is obligated to correct any item deemed deficient.

#### **PART 2 - PRODUCTS (NOT USED)**

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

##### **3.01 REQUIREMENTS**

- A. All materials required for the contract shall be new except where specified otherwise. The Project Manager may elect to perform additional inspections and/or tests at the place of the manufacture, the shipping point or at the destination to verify conformance to applicable specifications. Inspections and tests performed by DIA shall not relieve the Contractor from the responsibility to meet the specifications, nor shall such inspections/tests be considered a guarantee for acceptance of materials that will be delivered at a later time.
- B. The Contractor is obligated to correct or remove non-conforming materials, whether in place or not. If necessary, the 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 Project Manager may order correction, removal and/or replacement of defective materials by others, in which case the Contractor shall bear all costs incurred by such actions.
- C. Materials accepted on the basis of a Certificate of Compliance may be sampled and inspected/tested by DIA or its designer at any time. The fact that the materials were accepted on the basis of such certification shall not relieve the Contractor of his responsibility to use materials that conform to the specifications.
- D. The Contractor shall impose upon his suppliers the same quality control requirements, including inspection and test procedures, as imposed upon him by the specifications and referenced standards. The Contractor shall apply appropriate controls, designed to ensure that all materials supplied meet the requirements and specifications.

#### **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 multiplier for the division under which the work falls. If the City is required to re-inspect work or conduct a special test because a previous inspection, requested by the Contractor, showed that the work was defective or not in conformance, the Deputy Manager or his authorized representative may deduct from the contract value the cost of re-inspection at the rate of \$75.00 per man-hour.

**END OF SECTION 01400**

## SECTION 01401

### INDEPENDENT TESTING AGENCY

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. The Contractor shall employ the services of an Independent Testing Agency (ITA). This Section identifies the requirements for the Contractor to employ an Independent Testing Agency and identifies the required activities of the Independent Testing Agency.
- B. Laboratory and field testing requirements to be conducted by the ITA for materials and construction on this project are included in the appropriate technical specifications. Where the technical 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 ITA 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 ITA shall not in any way relieve the Contractor of his responsibility and obligation to meet all specifications and referenced standards. Employment of the ITA does not relieve the Contractor of providing the required Quality Control program.
- D. When inspections or tests by the ITA 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 (see paragraph 5.01 of this Technical Specifications 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 DIA.

##### 1.02 RELATED DOCUMENTS

- A. ASTM C 1077 - Standard Practices for Laboratory Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation
- B. ASTM D 3740 - Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
- C. ASTM E 329 - Inspection and Testing Agencies for Concrete, Steel and Bituminous Materials as Used in Construction
- D. ASTM E 543 - Determining the Qualifications of Nondestructive Testing Agencies.
- E. ASTM E 548 - Generic Criteria for Use in Evaluation of Testing and Inspection Agencies.
- F. Standard testing practices for other disciplines.

### 1.03 SUBMITTALS

- A. All submittals shall comply with requirements of Technical Specifications Sections 01300 and 01340 for submittal requirements.

### 1.04 CONTRACTOR SUBMITTAL OF PROPOSED TESTING AGENCIES

- A. The Contractor shall employ the services of an Independent Testing Agency (ITA) that has been accredited by AASHTO or CCRL or an approved equal to perform the test(s) required in the contract. The Contractor shall receive written acceptance from the Project Manager of the Independent Testing Agency prior to any permanent work being installed or tested.
- B. The Contractor shall not submit for acceptance to the Project Manager any testing agency or laboratory utilized in the design or construction document preparation or presently employed by DIA as part of DIA Quality Assurance.
- C. For consideration of acceptance, the Contractor shall submit to the Project Manager the following items received from the ITA:
  - 1. Evidence of license to operate as a commercial testing laboratory.
  - 2. Evidence that AMRL or CCRL has inspected the laboratory of the ITA within the last three years. Copies of the inspection(s) along with documentation showing correction of deficiencies, if any. AMRL or CCRL reference sample program test results shall be submitted from the previous two years.
  - 3. Affidavit of compliance with applicable national certification and/or accreditation program stating that the ITA laboratory actually performing the work is qualified to perform the tests and work in accordance with the technical requirements of the contract specifications.
  - 4. Name, certification, and qualifications of person in charge of the ITA laboratory. This individual shall be a full time employee of the ITA laboratory and have a minimum of five years of experience in construction materials testing.
  - 5. Evidence that the ITA laboratory and field technicians are qualified to perform the work. NICET, ACI, NRMCA, PCA, AWS, ASNT or a degree in a related engineering field with construction field experience can demonstrate qualifications through certification.
  - 6. A list of testing equipment proposed for each test procedure.
  - 7. A copy of the certification and latest calibration data for all ITA laboratory and field equipment to be used for this project verifying their conformance to national standards.
  - 8. A matrix indicating each technical specification section, paragraph, quantity and type of sampling and/or testing required.

### 1.05 SUBMITTAL OF REPORTS

- A. Test results shall be submitted by the Contractor to the DIA Project Manager after completion of inspections/tests by the ITA and prior to incorporation of the item(s) into the Work unless the test or inspection must be done during or after installation.
- B. Field testing/inspection, field density and moisture tests shall be reported in legible draft form immediately at the test site and attached to the Daily Quality Control Report (reference Technical Specifications Section 01400, paragraph 1.02.D) with typed final test results provided weekly to the Project Manager. If the DIA Inspector is not present for the actual test,

the draft results shall be given to the Project Manager at the end of the shift. All other inspections and test results shall be submitted the same week as the inspection or test.

- C. Test reports shall include worksheets showing all calculations used to obtain the test results. Certificates of compliance shall be submitted 30 days prior to the product's incorporation into the work. 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. Contract number and title
  3. Independent Testing Agency name
  4. Name of item(s) 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. Signature of authorized evaluator.

#### 1.06 WEEKLY REPORTS

- A. In addition, the ITA shall prepare and submit to the Project Manager a weekly summary report each week which summarizes all activities and results for the quality control tests and inspections conducted. The weekly summary report shall, at a minimum, identify all test types, test locations, testers, test results, any calculations used, specifications, whether the test passed or failed, and the material supplier, installer and Contractor. Requests 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 ITA shall identify costs of re-testing or additional site visits required due to scheduling changes by the Contractor.

- B. The weekly report shall be submitted per Technical Specifications Sections 01300 and 01340 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 or not. If necessary, the 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 Project Manager may order correction, removal and/or replacement of defective materials by others, in which case the Contractor shall bear all costs incurred by such actions.

### **3.02 PERFORMANCE**

- A. If the Project Manager determines that the ITA manager or any of his authorized support personnel are not effectively enforcing or performing the requirements specified in the contract, the Project Manager will, in writing, require the Contractor to remove and replace such personnel at no cost to DIA.

### **3.03 CONTROL OF MEASURING AND TEST EQUIPMENT**

- A. The ITA 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 Project Manager's request.

## **PART 4 - METHOD OF MEASUREMENT**

### **4.01 METHOD OF MEASUREMENT**

- A. No separate measurement shall be made for work under the 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. If the City is required to re-inspect work because the previous inspection showed that the work was defective or not in conformance, the Deputy Manager or his authorized representative may deduct from the contract value the cost of re-inspection at the rate of \$75.00 per man-hour.

**END OF SECTION 01401**

## SECTION 01402

### DIA QUALITY ASSURANCE

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. This Section identifies DIA Inspection activities to be performed by inspectors employed by DIA and working under the direction of the Project Manager.
- B. Inspection and tests, conducted by persons or agencies other than the Contractor, shall not in any way relieve the Contractor of his responsibility and obligation to meet all specifications and the referenced standards.
- C. The inspection and approval of work by other agencies above does not constitute inspection or acceptance of work required by DIA. Technical specifications may contain requirements more stringent than Building Inspection Division or other code agency requirements.

##### 1.02 RELATED DOCUMENTS

- A. Technical Specifications Section 01400 – “Contractor Quality Control”
- B. General Conditions Title 17, Section 1701 – “Construction Inspection by the City”
- C. General Conditions Title 17, Section 1702 – “Authority of Inspectors”
- D. General Conditions Title 17, Section 1703 – “Observable Defects”
- E. General Conditions Title 17, Section 1704 – “Defects – Uncovering Work”
- F. General Conditions Title 17, Section 1705 – “Latent Defects”
- G. General Conditions Title 17, Section 1706 – “Removal of Defective Materials and Work”.

#### PART 2 - PRODUCTS (NOT USED)

#### PART 3 - EXECUTION

##### 3.01 MANUFACTURING AND FABRICATION INSPECTIONS

- A. The Project Manager may elect to perform additional inspections and/or tests at the place of the manufacture, the shipping point or at the destination to verify conformance to applicable specifications. Inspections and tests performed by DIA shall not relieve the Contractor from the responsibility to meet the specifications, nor shall such inspections/tests be considered to be a guarantee for acceptance of materials that will be delivered at a later time.
- B. The Project Manager or his authorized representative may inspect at its source any 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 for testing and further inspection.
- C. Should the Project Manager conduct plant inspections the following conditions shall exist:

1. The Project Manager shall have the cooperation and assistance of the Contractor and the producer with whom the Contractor has contracted for materials.
  2. The Project Manager shall have full access during scheduled production or warehousing working hours to parts of the plant that are concerned with the manufacture, production, storage or shipping of materials being furnished.
  3. The Contractor shall arrange for adequate office or working space that can reasonably be needed for conducting a plant inspection. Office or working space shall be conveniently located with respect to the plant and/or warehouse as required by the Project Manager.
- D. It is understood and agreed that DIA shall have the right to re-test at DIA's expense any materials that have been tested and accepted at the source of supply after it has been delivered to the site.

### **3.02 INSPECTIONS AND TESTS**

- A. It is understood and agreed that DIA shall have the right to take samples and perform testing of samples at different intervals or at intervals concurrent to the Contractor's testing program. The Contractor shall be issued a Nonconformance Report or a Remedial Action Request in the event DIA tests fail.
- B. Materials accepted on the basis of a certificate of compliance may be sampled and inspected/tested by DIA or its designer at any time. The fact that the materials were accepted on the basis of such certification shall not relieve the Contractor of his responsibility to use materials that conform to the specifications.
- C. DIA inspection shall include but not be limited to Initial Inspection, Follow-up Inspection, Completion Inspection, Pre-Final Acceptance Inspection, and Final Acceptance Inspection. The Contractor shall comply with the requirements of these inspections as identified in Technical Specifications Section 01400.

### **3.03 NONCONFORMING WORK AND MATERIALS**

- A. Remedial Action Request (RAR)
1. The Project Manager will request the Contractor to take remedial action when nonconforming work is discovered and/or when test results indicate nonconforming work.
  2. The Project Manager will document remedial action that cannot be taken immediately (the same day) by issuing a Remedial Action Request form to the Contractor. Remedial Action Requests are appropriate when the affected element of work is in-progress and discrepancies can be rectified as the work proceeds. RAR's shall be written when work can be brought back into conformance with the contract documents.
  3. When issued, a Remedial Action Request will preclude payment for elements noted and will remain in effect until corrective actions have been submitted, approved and performed.
  4. Upon satisfactory completion of the remedial action, the Contractor shall transmit the RAR form with the Contractor's statement of action taken (including any applicable test results) to the Project Manager. The Project Manager will perform a follow-up inspection to verify the RAR has been satisfactorily completed. The RAR then will be closed.

- B. Nonconformance Report (NCR)
1. The Project Manager will issue a Nonconformance Report to the Contractor whenever there are violations of the terms of the contract that cannot be immediately brought back into conformance, including materials received and/or items of the work found not to be in conformance with contract requirements. When issued, a Nonconformance Report will preclude payment for elements noted and will remain in effect until corrective actions have been submitted, approved and performed.
  2. The Nonconformance Report form will describe the nature and extent of nonconforming elements and will include space for the Contractor's corrective action proposal, the designer's review of the Contractor's proposal, reinspection and/or verification of approved corrective rework and a space for the Project Manager's disposition of the nonconformance matter. Copies of the Nonconformance Report, at each step of its processing (i.e., initial issuance to Contractor through final disposition), will be sent to the Project Manager.
  3. The Project Manager will make the disposition of nonconforming items/materials.
- C. The Contractor is obligated to correct any item deemed deficient.

#### **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 unit price item, work order or lump sum bid item. If the City is required to re-inspect work because the previous inspection showed that the work was defective or not in conformance, the Deputy Manager or his authorized representative may deduct from the contract value the cost of re-inspection at the rate of \$75.00 per man-hour.

**END OF SECTION 01402**

## SECTION 01410

### CUTTING AND PATCHING

#### PART 1 - GENERAL

##### 1.01 RELATED DOCUMENTS

- A. Reference General Contract Conditions, GC 315.
- B. Reference Technical Specifications, Section 01411.

##### 1.02 DEFINITIONS

- 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.

##### 1.03 SUBMITTALS

- A. Refer to Technical Specifications Sections 01300 and 01340 for submittal procedures.
- B. Cutting and Patching Proposal: Submit a proposal describing procedures at least 30 calendar days before the time cutting and patching will be performed, requesting approval to proceed. Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work. The proposal shall include 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.
  - 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

#### 1.04 QUALITY CONTROL

- A. Operational Elements: Do not cut and patch the following 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 Project Manager:
1. Primary operational systems and equipment
  2. Air or smoke barriers
  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 Division 13 and 16
  9. HVAC systems.
- B. Miscellaneous Elements: Do not cut and patch 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 Project Manager:
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.
- C. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in DIA's sole opinion, reduce 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 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. Wall coverings
  - 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.

### 1.05 WARRANTY

- A. Existing Warranties: Remove, replace, patch and repair materials and surfaces cut or damaged during cutting and patching operations by methods and with materials so as not to void existing warranties.
- 1. If possible, retain 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 Project Manager:
    - a. Ornamental metal
    - b. Preformed metal panels
    - c. Firestopping
    - d. Terrazzo
    - e. ProCoat paint finishes
    - f. Granite flooring
    - g. Wall coverings
    - h. HVAC enclosures, cabinets or covers.

## PART 2 - PRODUCTS

### 2.01 MATERIALS

- A. General: All patching material shall be of the type specified for the material being patched. Comply with requirements specified in other Sections of these Technical Specifications.
- B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
- 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials as approved by the Project Manager.

## 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.
2. Immediately notify the 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 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.

### 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.
  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.
- B. Disposal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- 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 Sections of these Technical Specifications.
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 even-plane 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 a minimum of x-rays or ground penetrating radar at each

location planned for core drilling prior to submittal to the Project Manager and to utility representatives for approval for core drilling. The request for approval shall be submitted seven days in advance of the planned activity. 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 DIA Project Manager representatives prior to installation of any systems in new openings.
- C. 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 multiplier for the division under which the work falls.

**END OF SECTION 01410**

## SECTION 01411

### SELECTIVE DEMOLITION

#### PART 1 - GENERAL

##### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.
- B. Technical Specifications Section 01566 Environmental Controls

##### 1.02 SUMMARY

- A. This Section includes the following:
  - 1. Demolition and removal of selected portions of a building or structure.
  - 2. Repair procedures for selective demolition operations.

##### 1.03 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction, wrap and label and deliver them to Owner ready for reuse.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

##### 1.04 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain DIA's property, demolished materials shall become the Contractor's property and shall be removed from the project site.

##### 1.05 SUBMITTALS

- A. Refer to Technical Specifications Section 01300 and 01340 for submittal procedures.
- B. Qualification Data: For firms and persons specified in Technical Specifications Section 01400 Contractor Quality Control to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- C. Proposed Dust Control and Noise Control Measures: Submit 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.

- D. Submit a Schedule of Selective Demolition Activities that indicates the following:
1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure that DIA's and other tenants' on-site operations are uninterrupted.
  2. Interruption of utility services.
  3. Coordination for shutoff, capping, and continuation of utility services.
  4. Coordination of DIA's continuing occupancy of portions of existing building and of DIA's partial occupancy of completed Work..

#### 1.06 QUALITY CONTROL

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI A10.6 and NFPA 241.
- C. Predemolition Conference: Conduct conference at the Project site with all parties involved with demolition. Review methods and procedures related to selective demolition including, but not limited to, the following:
1. Inspect and discuss condition of construction to be selectively demolished.
  2. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
  3. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.

#### 1.07 PROJECT CONDITIONS

- A. Painting: Comply with manufacturer's recommendations for application conditions.
- B. When there are occupied portions of buildings immediately adjacent to selective demolition area, conduct selective demolition so DIA's or tenant's operations will not be disrupted. Provide not less than 72 hours' notice to Project Manager of activities that will affect DIA's or tenant's operations.
- C. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from authorities having jurisdiction.
- D. DIA assumes no responsibility for condition of areas to be selectively demolished. DIA will maintain conditions existing at time of inspection for bidding purpose as far as practical.
- E. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Project Manager.
- F. Storage or sale of removed items or materials on-site will not be permitted.
- G. Utility Service: Maintain existing utilities indicated to remain in service and protect them

against damage during selective demolition operations.

- H. Maintain fire-protection facilities in service during selective demolition operations.

### 1.08 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition by methods and with materials so as not to void existing warranties.
1. If possible, retain 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.
    - a. Ornamental metal
    - b. Preformed metal panels
    - c. Firestopping
    - d. Terrazzo
    - e. Wall covering
    - f. ProCoat paint finishes
    - g. HVAC enclosures, cabinets or covers.

## PART 2 - PRODUCTS

### 2.01 REPAIR MATERIALS

- A. Use repair materials identical to existing materials.
1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that, when installed, will match the visual and functional performance of existing materials, as approved by DIA.
  2. Use materials whose installed performance equal or surpass that of existing materials.
- B. Comply with material and installation requirements specified in individual specification sections.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- B. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- C. When unanticipated mechanical, electrical or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of the conflict. Promptly submit a written report to Project Manager.
- D. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

### 3.02 UTILITY SERVICES

- A. Existing Utilities: Maintain services indicated to remain and protect them against damage during selective demolition operations.
  - 1. Do not interrupt existing utilities serving occupied or operating facilities unless authorized in writing by the Project Manager and authorities having jurisdiction.

### 3.03 PREPARATION

- A. Site Access and Temporary controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
  - 1. Do not close or obstruct roads, streets, walks, walkways, or other adjacent occupied or used facilities without written authorization from the Project Manager and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
  - 2. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
  - 3. Protect existing site improvements, appurtenances and landscaping.
  - 4. Erect a plainly visible fence around drip lines of individual trees or around perimeter drip lines of groups of trees.
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities.
  - 1. Provide protection to ensure safe passage of people around selective demolition area, and to and from occupied portions of buildings.
  - 2. Provide temporary weather protection during intervals between selective demolition operations of existing construction on exterior surfaces and new construction to prevent water leakage and damage to structure and interior areas.
  - 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
  - 4. Cover and protect furniture, furnishings and equipment that have not been removed.
- C. Temporary Enclosures: Provide temporary enclosures for protection of existing buildings and construction projects, both in progress and completed, from exposure, foul weather and other construction operations. Provide temporary weather tight enclosures for building exteriors.
  - 1. Where heating or cooling is needed and permanent enclosures are not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
- D. Temporary Partitions: Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise.

### 3.04 SELECTIVE DEMOLITION

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
  - 1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting

- members on the next lower level.
2. Neatly cut openings and holes plumb, square and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings that are to remain.
  3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  4. Dispose of demolished items and materials promptly.
  5. Return elements of construction and surfaces that are to remain to the same condition existing before selective demolition operations begin.
- B. Existing Facilities: Comply with DIA's requirements for using and protecting elevators, stairs, walkways, loading docks, building entries, and other building facilities during selective demolition operations.
- C. Removed and Salvaged Items: Comply with the following:
1. Clean all removed and salvaged items.
  2. Pack or crate items after cleaning. Identify contents of containers.
  3. Store items in a secure area until turned over to DIA.
  4. Transport items to DIA's storage area as designated by the Project Manager.
  5. Protect items from damage during transport and storage.
- D. Removed and Reinstalled Items: Comply with the following:
1. Clean and repair items to a functional condition adequate for the intended reuse. Paint equipment to match new equipment.
  2. Pack or crate items after cleaning. Identify contents of containers
  3. Protect items from damage during transport and storage.
  4. Reinstall items in locations indicated in message schedule. Comply with installation requirements for new materials and equipment. Provide connections, supports and miscellaneous materials necessary to make the items functional for the use indicated.
- E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the Project Manager, items may be removed to a suitable protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

### **3.05 PATCHING AND REPAIRS**

- A. General: Promptly repair damage to adjacent construction caused by selective demolition operations.
- B. Patching: Comply with Technical Specification Section 01410, Cutting and Patching.
- C. Repairs: Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.



1. Completely fill holes and depressions in existing masonry walls that are to remain with an approved masonry patching material applied according to manufacturer's written recommendations.
- D. Finishes: Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.
- E. Floors and Walls: Where walls or partitions that are demolished 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.
  1. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements as specified in other sections of these specifications.
  2. Where patching occurs on a painted surface, apply primer and intermediate paint coats over the patch and apply a final paint coat over the entire unbroken surface containing the patch. Provide additional coats until the patch blends with adjacent surfaces.
  3. Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
- F. Ceilings: Patch, repair or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

### **3.06 DISPOSAL OF DEMOLISHED MATERIALS**

- A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Shall be in accordance with Technical Specifications Section 01566.

## **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 01411**

## SECTION 01500

### TEMPORARY FACILITIES

#### PART 1 - GENERAL

##### 1.01 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. A Contractor construction office is at the Contractor's option.
- B. Construction Offices, Construction Yards and Storage Areas
1. The Contractor's offices, construction yards laydown and storage areas shall be located as shown on the contract drawings and/or as designated by the DIA Project Manager. All construction offices, staging areas and material storage areas are to occur within these areas.
  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 the Construction Activities Stormwater Management Plan (CASMP) and/or Stormwater Management Plan (SWMP). 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 DIA 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. The DIA 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. The DIA PM will inspect the areas to ensure that the Contractor has properly stabilized the areas in accordance with DIA Rules and Regulations and restored the areas to the condition in which the City initially provided to the Contractor. A representative from DIA Environmental Services shall be present during the final walk through.
  6. Contractor materials shall be managed in accordance with applicable Environmental Regulations.
  7. 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 availability of space and approval by the Project Manager. If approved, these areas must also be included in the CASMP and/or SWMP.
  8. Access to and security of the Contractor's construction offices, yard, temporary facilities and storage areas shall be the responsibility of the Contractor, subject to the review and approval by the DIA Project Manager. 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. Jack the mobile office unit off its wheels and provide support. Enclose the underside of the trailer with weatherproof skirting.
  - c. Install tie downs in compliance with code.
  - d. Provide access to the field office and easily accessible space for parking six 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. All construction staging work shall comply with all Federal, State and Local laws and requirements. Contractor shall obtain all applicable permits.
  - e. Water and sewer lines to the field office, if installed, shall be installed so they will not freeze. It is likely that water and sewer services are NOT available for contractor trailers.
- C. Electrical Service
1. If required, 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 for the Project Manager's review.
  5. Bear all costs of temporary electric and water 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 Service
1. The Contractor shall have either office telephones or cellular telephones for the Contractor's Project Manager and the Contractor's Field Superintendent. These phones shall be manned at all times by the Contractor's personnel or by an answering machine.
  2. The Contractor shall have high speed internet service to his office for handling the project electronic data and email from DIA and others necessary for managing the project.
- E. Water Service
1. Water service for domestic use inside of a construction trailer is typically not available. Should domestic water service be available, all costs associated with connection, installation and use shall be the responsibility of the contractor. For use of water for the work, 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 temporary Meter at a Denver Water hydrant prior to obtaining any water. The Contractor shall arrange and pay for its supply/distribution system and use of the water. The location and alignment of the Contractor's temporary supply/distribution system must be approved by Denver Water and the DIA Project Manager prior to its installation. The Contractor shall remove all temporary facilities at

completion of work and shall leave in place all permanent water distribution facilities as directed by the DIA Project Manager.

2. The Contractor shall use in place fire hydrants only as noted above.

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.

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.

**1.02 QUALITY CONTROL**

- A. Provide products for, and the execution of, the Work of this Section that will satisfy the requirements of the NEC, OSHA and local codes. Provide products that satisfy requirements of NEMA and are UL listed.

**1.03 SUBMITTALS**

- A. Refer to Technical Specifications Sections 01300 and 01340 for submittal procedures.
- B. Submit a shop drawing within five 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, buildings, storage areas 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 days of completion of the installation.
  5. All Contractor Temporary Facilities are subject to approval by the DIA Project Manager.

**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.

- B. Provide temporary extension cords to supply tools not longer than 200 feet, except that additional length may be used if equipment will be grounded within 200 feet of tool or power.
- C. Portable power generators shall be grounded.

## **2.02 TELEPHONE SERVICE**

- A. Provide equipment that is compatible with that of Qwest Communications Company and the telephone exchange to which the Contractor connects.

## **2.03 DRINKING 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.

## **2.04 FIRE PROTECTION**

- A. Fire extinguishers shall be UL rated and shall comply with the Uniform Fire Code.

## **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.
- B. Provide portable type toilet facilities that satisfy the requirements of OSHA.
- C. Provide washing facilities as needed. Furnish soap, single-service paper towels, towel dispenser and towel receptacle. 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.

## **PART 3 - EXECUTION**

### **3.01 ELECTRICAL SERVICE**

- A. The availability of electrical service is not guaranteed. If desired by the Contractor and if available, 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.

### **3.02 TELEPHONE 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. 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.
- C. Provide sanitary bubbler drinking fountains if potable water service is available. Disinfect water piping before using for the potable water service.
- D. Install vacuum breakers, backflow preventers and similar devices in a manner and location which will prevent temporary water from returning to the water mains.
- E. 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 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.
  - 2. Furnish not less than one 20-pound fire extinguisher, type 2A-20ABC within ten feet of cutting and welding operations.
  - 3. Provide 20-pound fire extinguishers, type 2A-20ABC no further then 100 feet apart in buildings.
  - 4. Provide not less than one 20-pound fire extinguisher, type 2A-20ABC on any equipment of 75 horsepower or more.
- B. Instruct construction personnel as to location and use of temporary fire protection equipment.
- C. Fire extinguishers shall be located for easy access. Their location shall be clearly marked so that they can be seen at least 75 feet away.

### 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 work stations. 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 which 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 5 feet of known utilities. Submit fencing plan and typical details to DIA Project Manager at least seven days before planned execution for review and acceptance.

### **3.07 SIGNAGE**

- A. Contractor shall not provide any signage for temporary facilities without prior approval from the DIA Project Manager.

### **3.08 TEMPORARY FACILITIES AS-BUILT DRAWINGS**

- A. Provide as-built drawings showing vertical and horizontal location. The location of all regulating and shut off devices along with all branches shall be shown. The as-built drawings shall be based upon the DIA grid coordinate system and benchmark. As-built drawings shall be furnished within 48 hours prior to the Contractor's request for turning on services.

### **3.09 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 worksite of other contractors.
- B. As directed by the DIA Project Manager, the Contractor shall remove all temporary facilities, including all underground utilities, and restore the site to the condition in which the City initially provided it to the Contractor.
- C. The Contractor shall stabilize all areas of disturbance in accordance with State, local, and airport rules and regulations.
- D. In accordance with Part 1, an inspection of temporary facilities used by the Contractor is required prior to contract close out.

## **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 01500**

## SECTION 01505

### MOBILIZATION

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. The Work specified in this Section consists of preparatory work and operations including, but not limited to, those necessary for the movement of personnel, equipment, supplies and incidentals to the worksite; for the establishment of all offices, buildings and other facilities necessary for work on the project; and for all other work and operations which must be performed or costs incurred prior to beginning work on the various contract items on the worksite.

##### 1.02 SUBMITTALS

- A. Refer to Technical Specifications Sections 01300 and 01340 for submittal procedures.
- B. Submit a Mobilization Schedule 15 days prior to first billing for mobilization.

##### 1.03 DELIVERY

- A. Delivery to the worksite of construction tools, equipment, materials and supplies shall be accomplished in conformance with 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 worksite at the time they are scheduled to be installed or utilized.
- B. Upon completion of the Work, remove construction tools, apparatus, equipment, unused materials and supplies, plant, and personnel from the jobsite.

#### PART 4 - MEASUREMENT

##### 4.01 METHOD OF MEASUREMENT

- A. The Contractor shall submit for the Project Manager's approval 15 days prior to the first mobilization billing a detailed breakdown of all items, including subcontractor mobilization items that are proposed to be invoiced under Mobilization as part of the Schedule of Values (reference Technical Specifications Section 01370). This breakdown shall be labeled MOBILIZATION SCHEDULE. This schedule will be reviewed by the Project Manager to inform the Contractor what exact types of costs will be approved and paid under Mobilization.
- B. All requests for payment for mobilization shall include a detailed Mobilization Schedule which



shall identify the nature of each expense item, its delivery date, setup and startup date and the actual invoice amounts inclusive of acquisition, taxes, transportation assembly, and installation less all discounts.

- C. The Contractor shall identify a line item in the Mobilization Schedule as "Demobilization" and shall establish the value for this line item, at a minimum, of fifteen percent (15%) of the pay item for mobilization.
- D. The initial approved Mobilization Schedule shall determine the basis for all future mobilization payments.

## **PART 5 - PAYMENT**

### **5.01 MOBILIZATION**

- A. Payment will be made only for substantiated Mobilization costs in accordance with the approved Mobilization Schedule, and only to the limit of the contract lump sum amount for the pay item Mobilization. In no case will the City pay Mobilization in excess of five percent (5%) of the total Contract amount.
- B. Payment for the Contractor's bonds may be included in the Mobilization Schedule to the limits of the actual amount.
- C. Payment amounts for personnel involved in mobilization and listed on the approved Mobilization Schedule shall be limited to the Contractor's certified payroll amounts.
- D. Payment amounts for materials, supplies and transportation involved in mobilization and listed on the approved Mobilization Schedule shall be for the actual amounts paid as shown on invoices marked paid. No payment will be made under mobilization for the cost of permanent materials to be installed for this contract. See Section 01370 for Stored Materials.
- E. No payment under mobilization will be made for rented or leased equipment other than actual transportation cost.
- F. No separate payment will be made as part of the Mobilization Schedule for the maintenance and/or use of personnel, equipment, supplies and incidentals after project setup except for demobilization. These costs are to be incorporated in the remaining items of work in the Schedule of Values by multiplier or work request.
- G. For any mobilization payment amounts requested by the Contractor that are unsubstantiated or exceed the allowable limit of five percent of the total Contract amount, the Project City, may in its sole discretion reallocate any, all, or none of those amounts to other work items in the Schedule of Values for lump sum contracts or to be disbursed on a prorated basis as determined by the Project Manager for unit price contracts. Any unsubstantiated mobilization payment amounts not reallocated by the Project Manager will not be paid

**END OF SECTION 01505**

## SECTION 01566

### ENVIRONMENTAL CONTROLS

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. The Work specified in this Section consists of avoiding or mitigating adverse environmental impacts caused by construction activities in the areas of air quality, water quality, hazardous and non-hazardous solid waste, natural resources, and noise pollution. Reference the General Contract Conditions 806 (Protection of Drainageways), 807 (Protection of Environment), 808 (Hazardous and Explosive Materials or Substances), and 809 (Archeological and Historical Discoveries).
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 ("Environmental Requirements"). In addition, these Environmental Requirements include applicable Environmental Guidelines developed for DIA's Environmental Management System (EMS), as summarized in the airport's Rules and Regulations Part 180 (Environmental Management), which can be located on the airport's website at: <http://www.flydenver.com/diabiz/info/research/rules/index.htm>. Information on DIA's EMS as well as current versions of DIA's Environmental Guidelines and Environmental Policy are also located on the airport's website at: <http://www.flydenver.com/diabiz/community/enviro/index.asp>. These Environmental Requirements address, but are not limited to, requirements regarding the management of hazardous materials, petroleum products, solid waste, or any other substance; the National Environmental Policy Act (NEPA); and water quality and air quality regulations. Each entity, including subcontractors and subconsultants providing products, goods, and/or services on behalf of DIA, must be aware of the DIA Environmental Policy, the significant environmental aspects for DIA, and which of these aspects are relevant to the activities conducted by the entity.
  2. The Contractor shall comply with all Environmental Requirements and accept responsibility for compliance with all environmental quality standards, limitations and permit requirements promulgated there under. The Contractor shall obtain all environmental permits required for implementation of the project. Failure of these specifications to specifically mention any Environmental Requirement does not relieve the Contractor from compliance.
  3. If the City, as owner, is determined by any federal, state or local government agency, department, board or commission, or in any judicial proceeding to have violated any such environmental protection rules, laws or regulations as a result of Contractor's acts or omissions, the Contractor agrees to indemnify and hold harmless the City from any and all prosecutions, payment of any and all fines or penalties, and the cost of abatement and remediation, except that the Contractor shall not be required under General Contract Condition 807, to indemnify the City from any amounts which are attributable to the negligence of the City.
  4. 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.

##### 1.02 SUBMITTALS

- A. Refer to Technical Specifications Sections 01300 (Submittals) and 01340 (Shop and Working Drawings, Product Data and Samples) for procedures.
- B. Within 10 days after Notice to Proceed on a task order, the Contractor shall submit the following if applicable, unless waived by the DIA Project Manager:
1. Submittals pertaining to water quality management:
    - a. Copy of the application completed for the City and County of Denver Construction Activities Stormwater Discharge Permit (CASDP) and the CASDP issued for the project by the Denver Department of Public Works. This submittal consists of three items: the Authorization to Discharge, the Sewer Use & Drainage Permit, and the approved Construction Activities Stormwater Management Plan (CASMP).
      - 1) Revisions or amendments to the CASMP by the Contractor. At the completion of the project, after final stabilization has been achieved and accepted in accordance with CASDP requirements, the Contractor shall submit a copy of the CASDP Inactivation Request.
    - b. Copy of the certification issued by the Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Division (WQCD) under the Colorado Discharge Permit System (CDPS) for discharges associated with construction activities and/or industrial activities. Before obtaining this permit, the Contractor shall submit a **draft** permit application and the final permit application for DIA review and approval PRIOR to submittal to CDPHE. The Contractor need not submit copies of the general permits or the general permit rationales.
      - 1) At the completion of the project, after final stabilization has been achieved and accepted in accordance with the State of Colorado CDPS requirements, the Contractor shall submit a copy of the CDPS Inactivation Notice or Notice of Termination.
    - c. Copy of the certification issued by the State of Colorado CDPS under its General Permit for Construction Dewatering Activities. Before obtaining this permit, the Contractor shall submit a **draft** permit application and the final permit application for DIA review and approval PRIOR to submittal to CDPHE. The Contractor need not submit a copy of the general permit or the general permit rationale.
      - 1) At the completion of the project, the Contractor shall submit a copy of the CDPS Notice of Termination.
    - d. Copies of any certification issued by the State of Colorado under its Industrial Permitting for minimal discharges of process wastewater. Before obtaining a permit, the Contractor shall submit a **draft** permit application and the final permit application for DIA review and approval PRIOR to submittal to CDPHE. The Contractor need not submit a copy of the issued permit or the permit rationale.
      - 1) The Contractor shall submit copies of Discharge Monitoring Reports (DMRs) and at completion of the project, the CDPS Notice of Termination.
    - e. A copy of the well permit from the state Division of Water Resources for every new well that diverts or for the monitoring of groundwater.
    - f. A copy of the Notice of Intent for any borehole structure filed with the state Division of Water Resources.
  2. Submittals pertaining to sewage holding tanks associated with buildings and trailers. For purposes of this Section 01566, the generic term “sewage holding tank” means “individual sewage disposal system (ISDS)”, “privy vault”, “septic tank”, or “septic system”.
    - a. Copy of the permit application for a sewage holding tank.
    - b. Copy of the Sewer Use & Drainage Permit issued by the Denver Department of Public Works.

- c. Copy of the ISDS permit issued by the Denver Department of Environmental Health.
  3. Submittals pertaining to air quality management:
    - a. Copy of any permit issued by the CDPHE Air Pollution Control Division (APCD). Before obtaining a permit, the Contractor shall submit a **draft** permit application and the final permit application for DIA review and approval PRIOR to submittal to CDPHE.
      1. In cases where the City has already obtained a dust control permit, the Contractor shall submit a copy of the paperwork transferring the permit over to the Contractor's company name and a copy of the transferred permit.
    - b. Dust control plan. For projects where the State of Colorado requires a dust control permit, this submittal is waived. This plan must address appropriate control measures that the Contractor will employ to minimize the release of fugitive dust from the site. In addition, the Contractor must comply with the requirements in Section 3.01 below.
    - c. Copies of the Notices of Relocation.
  4. Submittals pertaining to storage tanks and containers:
    - a. Copy of the permit issued by the State of Colorado, Department of Labor and Employment, Division of Oil and Public Safety, for installation of petroleum (or other regulated substances) storage tanks located on airport property and used for the project.
    - b. Copy of permits issued by the Denver Fire Department for storage tank installations, storage tank removals, and hazardous materials use/storage.
    - c. Copy of Spill 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. Waste Management Plan. This submittal may be waived if DIA Environmental Services, upon consultation with the DIA Project Manager, deems it unnecessary to require such plan. When required, this plan must include, at a minimum, waste management measures listed in Paragraph 3.05.I. below. Because this plan may be required at any point during the project, the Contractor should anticipate making this submittal in its contract bid or proposal.
  6. 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.

### 1.03 RELATED DOCUMENTS

- A. Code of Federal Regulations (CFR) Publications (including but not limited to):
  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 Material Transportation Regulations
- B. Colorado Revised Statutes (including but not limited to):
  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
  7. Solid waste regulations
- C. City and County of Denver Executive Orders (including but not limited to)
1. Executive Order No. 115
  2. Executive Order No. 123
- D. Denver Revised Municipal Code, Title II, Sections 48-44 and 48-93
- E. City and County of Denver Construction Sites Program
- F. City and County of Denver Construction Activities Stormwater Management Plans Information Guide
- G. Any other applicable rules, regulations, ordinances, and guidance must be followed as applicable.

## 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's Construction Activities Stormwater Management Plan Information Guide and the current version of the Urban Drainage and Flood Control District's Urban Storm Drainage Criteria Manual, Volume 3: Best Management Practices. These documents are posted at <http://www.denvergov.org/Portals/528/documents/DftGuide452007.pdf> and [http://www.udfcd.org/downloads/down\\_critmanual.htm](http://www.udfcd.org/downloads/down_critmanual.htm) respectively.

## 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 DIA property. NOTE: Application of dust control measures should be discussed 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 DIA PM prior to application.

2. The Contractor shall suspend all earthmoving activities if wind speed exceeds 30 mph. For purposes of this Section 01566, 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 DIA 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 DIA 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 DIA 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 DIA 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 (refer to DIA Technical Specification 16642 for Cathodic Protection Requirements).
  4. The Contractor shall not operate any valves, sluice gates or other drainage appurtenances related to any DIA sewer system without the prior approval of both the DIA Project Manager and DIA 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 Sites Program, 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 DIA Technical Specification 01500 for Temporary Facilities.
- D. Clean soil fill may be stockpiled in any area that has been previously approved and signed off by the DIA 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 DIA PM's request, all labor, material and equipment judged appropriate by the Project Manager to maintain suitable erosion and sediment control features. These actions requested by the DIA PM 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 Urban Drainage and Flood Control District's Urban Storm Drainage Criteria Manual, Volume 3: Best Management Practices and the City and County of Denver's Construction Activities Stormwater Management Plan information Guide. These documents are posted at: [http://www.udfcd.org/downloads/down\\_critmanual.htm](http://www.udfcd.org/downloads/down_critmanual.htm) and <http://www.denvergov.org/Portals/528/documents/DftGuide452007.pdf> respectively. Deviations from these two documents are allowed with written consent from the City and County of Denver NPDES Inspector.

### 3.05 SOLID WASTE MANAGEMENT

- A. This paragraph applies to solid waste. Solid waste is defined at 40 CFR 261.2 and includes all putrescible and nonputrescible solid, semisolid and liquid wastes, but does not include hazardous waste which is treated as a separate subset of solid waste. Hazardous waste is defined at 40 CFR 261.3, and 6 CCR 1007-2 as a solid, a liquid, or a contained gaseous material that is no longer used or that no longer serves the purpose for which it was produced and meets the definitions of the regulations. Certain types of non-hazardous solid waste may require special handling; such wastes are sometimes called "special waste."
- B. Hazardous and non-hazardous 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. If questionable material is encountered during construction activities, the Contractor must immediately notify the DIA Communications Center at (303) 342-4200 and the DIA Project Manager. If the Contractor will utilize any chemicals that will result in the generation of a potentially hazardous waste, the Contractor must prepare and submit a Waste Management Plan (Section 3.05.I)
- C. Remove scrap and waste material and dispose of it in accordance with laws, codes, regulations, ordinances, and permits.
- D. 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 DIA approval only), sale, use for fuel, donation to other public or private projects, or through disposal in approved public or private 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 DIA property.

- E. City and County of Denver Executive Order No. 115 requires all non-hazardous solid waste generated at DIA 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. Contractors shall establish accounts in advance for the disposal of non-hazardous solid waste generated on the project; the Contractor is responsible for contracting waste hauling services. 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.
1. 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 Highways 30 or 470 unless these routes are impassable (refer to Exhibit A for preferred haul route). Specifically, Gun Club Road between Interstate Highway 70 ("I-70") and Mississippi Avenue shall be avoided.
- F. Some of the naturally occurring material found by the Contractor, especially tar or oil-impregnated 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 of the material to the City.
- G. The routes to be followed when transporting solid or hazardous wastes may be subject to the approval of the local agency having jurisdiction.
- H. The Contractor shall not wash down equipment in such a manner as to flush grease and oils into the project site or onto airport property unless the waste is properly contained, treated, and disposed.
- I. Unless waived, the Contractor shall submit a Waste Management Plan that meets these minimum requirements:
1. Contractor's name and contract number;
  2. A list of all materials, products, and wastes for the project; acknowledgment whether any of those materials and products require special handling or storage for environmental, safety, or fire code reasons; and acknowledgment whether any of the wastes will become regulated wastes upon disposal. The list of materials, products, and wastes shall include, at a minimum, trash and unclassified construction debris, asphalt spoils, concrete spoils, pavement sweepings, soils contaminated by chemicals or petroleum products during the project, lime and cement trimmings, scrap metal, and every chemical product used on the project. Reuse of a product on site for its original intended purpose (e.g., cement trimmings from one part of the project used elsewhere on the airport) does not constitute generation of a waste for disposal.
  3. For each material and product listed, the Contractor shall identify the storage method, and identify measures to store hazardous waste separately from non-hazardous waste.
  4. For each waste listed, the Contractor shall identify the handling/transportation method, the disposal method, and the disposal facility utilized.
  5. If the Contractor anticipates generation of hazardous waste, the Contractor shall provide its USEPA (generator) identification number.
  6. Recycling measures.



7. Waste minimization measures.
  8. Pollution prevention measures.
  9. Training measures for management of hazardous materials and hazardous wastes on site.
- J. 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. DIA 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 1 business day.
- K. The Contractor shall require all shipments to the worksite 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 quantity of hazardous material in the shipment. This information must be provided to the DIA PM prior to any hazardous material being allowed on site.
- L. Before leaving the site with any hazardous waste or material requiring special handling, disposal, or storage, the Contractor must provide the DIA PM 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.
- M. The Contractor shall recycle all construction materials to the extent practicable.

### 3.06 CONSTRUCTION DEBRIS RECYCLING

- A. The City and County of Denver encourages recycling applicable materials. Scrap metal, wood, and other construction materials may be eligible for recycling. The Contractor is responsible for coordinating all aspects with regard to recycling. The Contractor can contact DIA Purchasing or DIA Environmental Services for information regarding recycling policies and practices.
- B. Dry concrete and asphalt materials are considered solid waste, but may be eligible for recycling. DIA maintains two dry concrete and asphalt recycling yards used for the accumulation and crushing of these materials. The only allowable materials at the recycle yards are dry concrete and asphalt materials derived from construction activities occurring on DIA property. The South Yard is located on 71<sup>st</sup> Ave just east of Jackson Gap Street. The North Yard is located on the south side of 110<sup>th</sup>, west of Queensburg Street. The use of these yards must be approved by the DIA Project Manager.
1. Concrete washout activities are prohibited anywhere on DIA property unless a) the activity is specifically authorized under a CDPS permit and included in the SWMP or b) the washwater is collected and hauled offsite for disposal at an appropriately permitted facility. Concrete washout activities authorized by permit are only allowed at a designated concrete washout area as indicated in the approved CASMP and include the washing of the chute and tools ONLY. Concrete washout spoils are eligible for recycling once the washout has been segregated and allowed to dry and harden in accordance with permitted methods.
  2. Rejected loads and/or other wet concrete or asphalt materials are prohibited to be placed ANY WHERE on DIA property unless the Contractor holds a permit that authorizes the placement of such material on the site. Unless specifically authorized in a CDPS permit issued to the Contractor, these materials must be returned to the facility of origination or other permitted facility for proper disposal.
  3. The Contractor shall not place any concrete containing welded wire fabric or deformed

steel reinforcing bars installed in a crisscross fashion in either of the airport's two construction spoils recycling yards. The Contractor shall remove reinforced concrete from the project site and haul such waste to the DADS landfill.

4. A Recycle Materials Manifest is required to be filled out by the Contractor for each load of concrete or asphalt placed in these areas and given to the responsible Project Manager. It will be the responsibility of the Project Manager to ensure the accuracy and completeness of the manifests. The Project Manger will also be responsible for instituting controls to ensure that only the manifested materials are placed in the approved site. If two or more Project Managers have material going into a site at the same time, they will need to coordinate their efforts to ensure that only approved and manifested materials are allowed on the site.
5. A copy of all manifests must be turned in on a weekly basis to the Assistant Deputy Manager of the Construction Management Section (Michael Steffens). A copy of the Recycled Materials Manifest form is available from the DIA Project Manager.

**NOTE:** Concrete and asphalt waste materials are considered a potential pollutant source and must be addressed in the CASMP and/or SWMP.

### 3.07 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.
- B. The provision of such preventive systems shall be subject to acceptance by the DIA PM 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 DIA 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 either a certification from a Professional Engineer or self-certification (if applicable), as well as management approval from the legally responsible Contractor representative.

### 3.08 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 DIA property, the Contractor is required to take immediate action to mitigate the release or spill and report it to the DIA Project Manager and to the DIA Communications Center at (303) 342-4200.
- B. The Contractor is responsible for notifying the appropriate regulatory agency(ies) in the event

suspected and/or confirmed releases are identified, in accordance with regulatory requirements.

### 3.09 SITE REMEDIATION AND RESTORATION

- A. The Contractor shall be required to perform any necessary site assessment and remediation activities required by applicable regulatory agency(ies).
- 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 DIA property and those that must be transported offsite for disposal.
- C. During all construction activities that require the management of soils, the Contractor must notify the Project Manager and DIA 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 location(s) 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 Project Manager and DIA 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 DIA PM 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 Project Manager in conjunction with DIA 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 DIA property. In accordance with Section 3.06, materials removed that are suitable for recycling will be placed within areas designated on DIA to store these materials.
- F. The Contractor shall restore any area on the Airport which 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 her duly authorized representative (see DIA Rules & Regulations – Part 180).

## PART 4 - MEASUREMENT

### 4.01 METHOD OF MEASUREMENT

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

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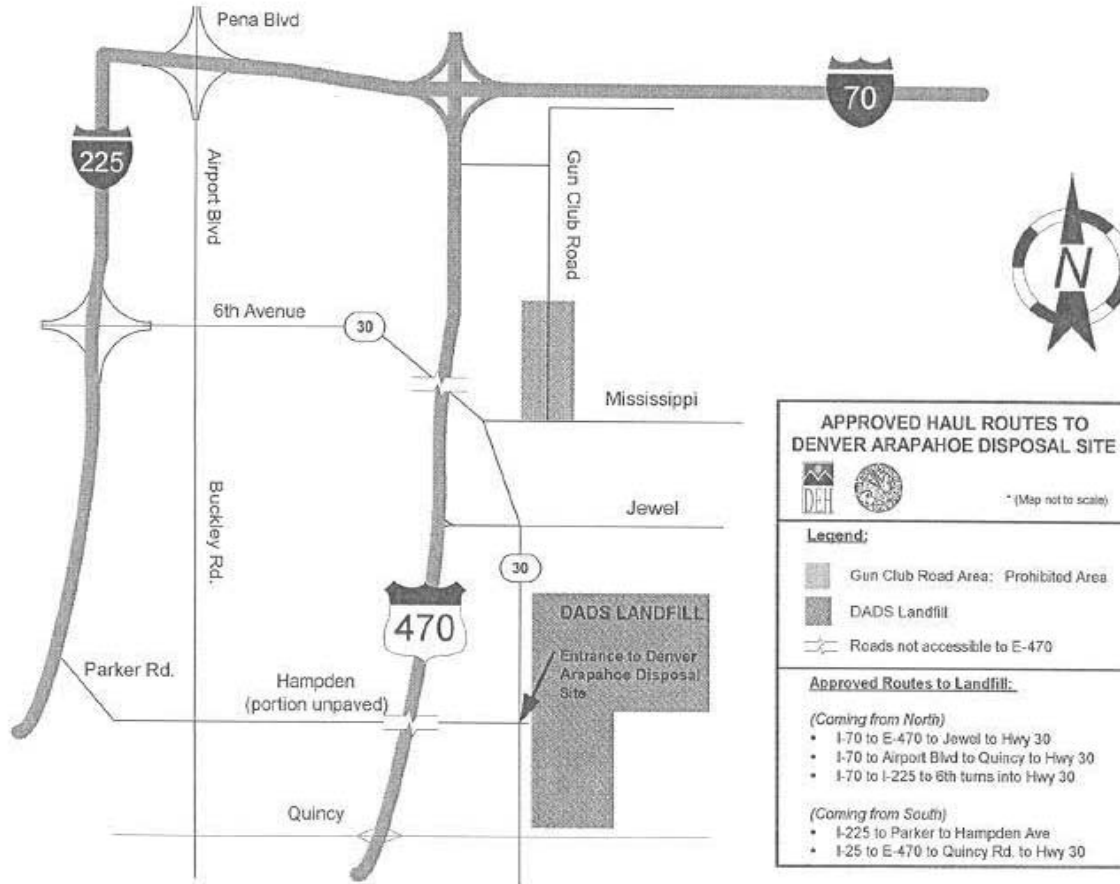
**PART 5 - PAYMENT**

**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 items. The Contractor shall be responsible for payment of all fees associated with review of environmental permit applications and processing of environmental permits.

**EXHIBIT A**

**MAP OF ROUTE TO DADS LANDFILL**



**END OF SECTION 01566**

## SECTION 01576

### TRAFFIC CONTROL

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- 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. All work must be in conformance with the Manual of Uniform Traffic Control Devices (MUTCD), Colorado Department of Highway Standards and SSPWC Specifications. The Contractor must coordinate his proposed traffic control needs with the needs of other contractors on the airport construction site in writing through the Project Manager.
- B. Reference Contract General Condition, GC 805.

##### 1.02 QUALITY CONTROL

- A. Temporary signal work shall conform to "Standard Specifications for Public Works Construction".
- 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 trained personnel who will be responsible for design, implementation and inspection of traffic control needs.

##### 1.03 SUBMITTALS

- A. Refer to Technical Specifications Sections 01300 and 01340 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. 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 Project Manager may require the Contractor to revise the Traffic Control Plan to address traffic considerations not included in the Contractor's plan.

#### PART 2 - PRODUCTS

## **2.01 TRAFFIC CONTROL DEVICES**

- A. Such devices which include signs, delineators, striping, barriers, barricades and high level warning devices shall conform to the latest revision of the "Manual on Uniform Traffic Control Devices" and the latest revision of the CDOT Supplement thereto.

## **PART 3 - EXECUTION**

### **3.01 TEMPORARY TRAFFIC CONTROL DEVICES**

- A. Place temporary control devices in those locations that will enable traffic to traverse the area without hazard or abrupt changes in direction. Place traffic cones or delineators on not more than 10 foot centers. Operate warning lights between sunset and sunrise; place control devices so that approaching traffic is alerted to hazards and variances to normal traffic patterns. Place high rise warning flag units where motorist's visibility of warning devices, traffic signals, and pedestrian crosswalks will be either limited or obscured. Place barricades, cones and similar protective devices where personnel and equipment will be working within five feet of the edge of a lane bearing traffic. Clean and repair damaged devices or replace them with new devices as required.

### **3.02 TEMPORARY TRAFFIC STRIPING AND PAVEMENT MARKINGS**

- A. Stripe and mark bituminous and Portland cement pavement before diverting traffic. Maintain stripes and marks until permanent traffic marking and striping has been provided, or the temporary condition is no longer required. Remove temporary striping and marks when no longer required.

### **3.03 FLAGGERS**

- A. Furnish flaggers where construction equipment may intermittently encroach on traffic lanes, already existing haul routes, and where construction operations would affect public or construction safety and convenience and also where active haul roads cross existing access roads.

### **3.04 CONSTRUCTION VEHICULAR TRAFFIC**

- A. Restrict construction vehicles to approved haul routes.

### **3.05 CONTROLLING VEHICULAR AND PEDESTRIAN FLOW ADJACENT TO WORKSITE**

- A. Ensure that construction operations will not impede normal traffic. Where work is in the area of pedestrian or occupant activity, the Contractor shall erect barriers to prevent pedestrian intrusion into the worksite. The barriers will be a minimum of 42 inches in height and shall not be penetrable from floor or grade to the top of the barrier. Barriers erected in areas where there is a change in grade of over six inches shall meet barrier requirements as defined in the UBC and the DBC.

### **3.06 SIGNS**

- A. 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 worksite. The Contractor must notify the DIA Project Manager a minimum of five working days in advance of the Contractor's plan to install, relocate or remove any regulatory parking signs.

- B. Furnish and install any necessary advance detour or guidance signing.
- C. Authorize, modify and install regulatory parking controls and vehicle turn restrictions.
- D. Implement those traffic control modifications outside of the traffic control zone which are necessary to manage diverted traffic.

**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 this work.

**END OF SECTION 01576**



## SECTION 01580

### TEMPORARY SIGNS

#### PART 1 - GENERAL

##### 1.01 CONSTRUCTION SIGNAGE VISIBLE TO THE PUBLIC.

##### 1.02 TEMPORARY DIRECTIONAL, INFORMATIONAL OR REGULATORY SIGNAGE.

##### 1.03 QUALITY CONTROL

- A. Construction and other temporary signage visible to the public must be commercial grade quality, professionally fabricated and installed for the location of the sign. The contractor is responsible to maintain this signage until it is no longer needed.

#### 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 conceal all attachments.
- 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 with out damage to finishes.
- 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 Signage Design Project Manager or the DIA Project Manager. Submit temporary sign finishes, materials and paint, etc., for review and approval prior to any fabrication.

##### 3.03 MAINTENANCE

- A. The Contractor is responsible to maintain temporary signage until it is no longer needed.

##### 3.04 REMOVAL

- A. The contractor is responsible to remove all temporary signs, 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.

**END OF SECTION 01580**

## SECTION 01620

### STORAGE AND PROTECTION

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- 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.

##### 1.02 SUBMITTALS

- A. Refer to Technical Specifications Sections 01300 and 01340 for submittal procedures. Submit concurrently with submittals required in Section 01050.
- 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 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 which are to be incorporated into the construction and 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. Store these items in a manner which will prevent damage and which will facilitate inspection. Leave seals, tags and labels intact and legible. Maintain access to products to allow inspection. 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.
- 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 worksite 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 the owner's property. Do not store hydraulic fluids, gasoline, liquid petroleum, gases, explosives, diesel fuel and other flammables in excavations, except one day's supply of diesel fuel may be stored in open excavations.
- 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.

### **3.04 LABELS**

- A. Storage cabinets and sheds that will contain flammable substances and explosive substances shall be labeled FLAMMABLE--KEEP FIRE AWAY and NO SMOKING with conspicuous lettering and conforming to OSHA 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. 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. See Technical Specifications Section 01370 for additional requirements for the possible payment of stored material.

**END OF SECTION 01620**

## SECTION 01630

### SUBSTITUTIONS

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. The Work specified in this Section consists of submitting for the approval of a different material, equipment or process then is described in the Contract Documents. The Contractor is to use the Request for "Or Equal" Approval form found in the Instructions to Bidders before submitting his bid. The Request for Substitution form, found in Section 01999, is used after the Contractor receives his Notice to Proceed.
- B. If the substitution changes the scope of work, contract cost or contract time, a change order is required. As-built drawings and specifications must include all substitutions even if a change order is not issued.

##### 1.02 QUALITY CONTROL

- A. The substitution must provide the same quality as what it is replacing. The level of quality is defined by:
  - 1. Maintenance and operating cost
  - 2. Reliability
  - 3. Durability
  - 4. Life expectancy
  - 5. Ease of cleaning
  - 6. Ability to be upgraded as needed
  - 7. Ease of interacting with other systems or components
  - 8. Ability to be repaired
  - 9. Availability of replacement parts
  - 10. Established history of use in similar environments
  - 11. Performance equal or superior to that which it is replacing.

##### 1.03 SUBMITTAL

- A. Refer to Technical Specifications Sections 01300 and 01340 for submittal procedures.
- B. A complete Request for Substitution using the form in Section 01999 must be made 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, as appropriate, detailed product data sheets for the specified items and the substitution. Samples and shop drawings shall also be submitted of the substitution as applicable. The submittal shall contain all the data required to be submitted for acceptance of the originally specified item or process.
- D. The submittal shall contain all the applicable information required in Technical Specifications Section 01630, paragraph 2.01 below.

- E. A signed statement as outlined in Technical Specifications Section 01630, paragraph 2.03.B below must accompany the Request for Substitution.

## **PART 2 - EXECUTION**

### **2.01 INFORMATION**

- A. Provide the following information as applicable with the Request for Substitution on the item or process that is being requested to be substituted:
1. A complete description of the item or process
  2. Utility connections including electrical, plumbing, HVAC, fire protection and controls
  3. The physical dimensions and clearances
  4. A parts list with prices
  5. Samples of color and texture
  6. Detailed cost comparisons of the substitution and the contract specified item or process
  7. Manufacturer warranties
  8. Energy consumption over a one-year period
  9. What local organization is certified to maintain the item
  10. Performance characteristics and production rates
  11. A list of any license fees or royalties that must be paid
  12. A list of all variations for the item or method specified
  13. A list of at least three other projects of similar nature to this contract where the products or methods have been in use for at least one year including telephone number and name of the person to contact at these other projects
  14. An analysis of the effect of the substitution on the schedule and contract cost and on the overall project as it relates to adjoining work.

### **2.02 SUBSTITUTION REQUEST**

- A. The formal Request for Substitution will be evaluated by the 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 Deputy Manager of Aviation 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.

## 2.03 CONDITIONS

- A. As a condition for submitting a Request for Substitution the Contractor waives all rights to claim for extra cost or change in contract time other than those outlined in the request and approved by the Deputy Manager of Aviation. 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 cost and scheduling data."
- C. The statement shall be signed and dated by the Contractor's Superintendent.

### 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 the lump bid item.

**END OF SECTION 01630**



## SECTION 01650

### SYSTEM STARTUP, TESTING AND TRAINING

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION OF WORK

- A. Provide complete startup, testing and operator training services to ensure operability of all electrical and electronic equipment supplied.

##### 1.02 SUBMITTAL

- A. Refer to Technical Specifications Sections 01300 and 01340 for submittal procedures.
  - 1. Test procedures
  - 2. Test report
  - 3. Training outline.

##### 1.03 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 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 30 days before the time allowed in the construction schedule for commencing startup and testing procedures, the Contractor shall submit to the Project Manager six copies of the detailed procedures he proposes for testing and startup of all electrical and mechanical equipment. These procedures are submitted for review and acceptance.
  - 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. 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. Motors shall be tested in accordance with ANSI/IEEE Publication 112. The Contractor is advised that failure to observe these precautions may place the acceptability of the subject equipment in question, and he may either be required to demonstrate that the equipment has not been damaged, or replace it as determined by the Project Manager.
  - 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. Once the Project Manager has accepted the testing procedures, the Contractor shall provide checkout, alignment, adjustment and calibration signoff forms for each item of equipment and each system that will be used. The Contractor and the 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 to the City at no cost for a period of 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 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 Project Manager within 30 days after completion of the system startup period.

#### **1.04 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 make an adjustment to 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 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. At the end of the startup period, all filters shall be replaced with new ones. The City may, at its option, provide 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.

#### **1.05 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 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 16 hours of maintenance training to the Airport. Classes shall accommodate up to five people at a time.
- D. The Contractor shall provide a minimum of 8 hours of operator training to the Airport. Classes shall accommodate up to five people at a time with up to two separate courses (one for each shift).
- E. The Contractor shall provide a syllabus to the Project Manager at least seven 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 Project Manager.
- F. The Contractor shall videotape all training sessions and provide labeled digital video disks (DVD) to the Project Manager. The Contractor shall provide three copies of the DVD to the Project Manager in DVD+R format. All disks shall be labeled using the LightScribe technology.
- G. The Contractor shall provide an annotated syllabus to the Project Manager that indicates topics contained on each tape.

**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 the lump bid item. No contractual item requiring startup or testing will be paid until the conditions of this Section are completely satisfied.

**END OF SECTION 01650**

## SECTION 01700

### CONTRACT CLOSEOUT

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. Work specified in this Section includes procedures required prior to Final Acceptance of the Work in addition to those specified in General Conditions Title 20 and Technical Specifications Section 01720.

##### 1.02 PREPARATION FOR FINAL INSPECTION

- A. Before requesting inspection for Final Acceptance of the Work by the City, inspect, clean and repair the Work as required.

##### 1.03 FINAL INSPECTION

- A. When the Contractor considers that the Work is complete, he shall submit written certification that:
  - 1. Work has been inspected by the Contractor for compliance with contract documents.
  - 2. Work has been completed in accordance with contract documents.
  - 3. Work is ready for final inspection by the City.
  - 4. All as-built required documents have been submitted and accepted.
  - 5. All damaged or destroyed real, personal, public or private property has been repaired or replaced.
  - 6. All operation and maintenance manuals have been submitted and accepted and all training has been completed.
  - 7. All personnel badges and vehicle permits have been returned to DIA Airport Security.
- B. The Project Manager will inspect to verify the status of completion with reasonable promptness after receipt of such certifications. The inspection of the work will be done in accordance with the General Conditions.
- C. If the Project Manager finds incomplete or defective work:
  - 1. The Project Manager may, at the Project Manager's sole discretion, either terminate the inspection or prepare a punch list and notify the Contractor in writing, listing incomplete or defective work.
  - 2. The Contractor shall take immediate steps to remedy stated deficiencies and send a second written certification to the Project Manager that Work is complete.
  - 3. The Project Manager will then reinspect the Work.

##### 1.04 REINSPECTION FEES

- A. Should the Project Manager perform reinspection due to failure of the Work to comply with the claims of status of completion made by the Contractor:

1. The Contractor shall compensate the City for such additional services at the rate of \$75.00 per man-hour.
2. The City shall deduct the amount of such compensation from the final payment to the Contractor.

#### **1.05 FINAL ADJUSTMENT OF ACCOUNTS**

- A. Submit a Final Statement of Accounting to the 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 amount.
  2. Additions and deductions resulting from:
    - a. Previous change orders.
    - b. Allowances.
    - c. Final quantities for unit price items. Along with this statement shall be detailed backup for the quantities.
    - d. Deductions or corrected work.
    - e. Penalties.
    - f. Deductions for liquidated damages.
    - g. Deductions for reinspection payments.
    - h. City resurveys required due to the Contractor.
    - i. Other adjustments.
  3. Total contract amount, as adjusted.
  4. Previous payments.
  5. Sum remaining due.
- C. If required, the Project Manager will prepare a final change order, reflecting approved adjustments to the Contract sum which were not previously made by change orders.

#### **1.06 FINAL APPLICATION FOR PAYMENT**

- A. The Contractor shall submit the final application for payment in accordance with the procedures and requirements stated in the General Conditions Title 20.

#### **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 01700**

## SECTION 01710

### CLEANING

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. The Work specified in this section consists of maintaining a clean, orderly, hazard free worksite during construction, and final cleaning for the City's Final Acceptance. Failure to maintain the worksite will be grounds for withholding monthly payments until corrected to the satisfaction of the Project Manager.

##### 1.02 JOB CONDITIONS

A. Safety Requirements

1. Maintain the worksite in a neat, orderly and hazard-free manner in conformance with all federal, state and local rules, codes, regulations and orders, including all OSHA requirements, until Final Acceptance of the Work. Keep catwalks, underground structures, worksite walks, sidewalks, roadways and streets, along with public and private walkways adjacent to the worksite, free from hazards caused by construction activities. Inspect those facilities regularly for hazardous conditions caused by construction activities.

B. Hazards Control

1. Store volatile wastes in covered metal containers and remove those wastes from worksite daily.
2. Do not accumulate wastes which create hazardous conditions.
3. If volatile and noxious substances are being used in spaces that are not naturally ventilated, provide artificial ventilation.
4. Hazard controls shall conform to the applicable federal, state and local rules and regulations.
5. Provide appropriate waste receptacles in all areas in which employees are working. Waste receptacles shall be kept covered at all times. All materials on site shall be anchored and covered to prevent any objects from becoming wind-borne.

C. Access

1. Maintain the worksite to permit access by other City contractors as required and to allow access by emergency personnel.

##### 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 PM and also approved by the PM and Environmental Services. Outdoor washing at DIA 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 DIA Environmental Services (refer to DIA SWMP). Failure to comply with this requirement would result in the

discharge of non-stormwater. This failure/action by the Contractor may result in Fines that the Contractor will be responsible to pay. Indoor washing must be conducted in accordance with the Best Management Practices (BMPs) detailed in the DIA SWMP. Refer to Technical Specification 01566. In addition, all indoor washing must be conducted in a manner that ensures that there are no prohibited discharges to the sanitary sewer system.

## **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 Material Safety Data Sheets (MSDS) on site for all chemicals. DIA 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. Must ensure compliance with all environmental regulations. No wastes can be disposed on DIA property.

## **PART 3 - EXECUTION**

### **3.01 INTERIM CLEANING**

- A. Clean the worksite every shift/workday for the duration of the construction contract. Maintain structures, grounds, storage areas and other areas of worksite, including public and private properties immediately adjacent to worksite, free from accumulations of waste materials caused by construction operations. Place waste materials in covered metal containers. All hard concrete, steel, wood and finished walking surfaces shall be swept clean daily.
- B. Remove or secure loose material on open decks and on other exposed surfaces at the end of each workday or more often in a manner that will maintain the worksite hazard free. Secure material in a manner that will prevent dislodgment by wind and other forces.
- C. Sprinkle waste materials with water or acceptable chemical palliative to prevent blowing of dust.
- D. Promptly empty waste containers when they become full and legally dispose of the contents at dumping areas off the City's property.
- E. Control the handling of waste materials. Do not permit materials to be dropped or thrown from structures.
- F. Immediately remove spillage of construction related materials from haul routes, work site, private property, public rights of way, or on the Denver International Airport site.
- G. Clean only when dust and other contaminants will not precipitate upon newly painted surfaces.
- H. Cleaning shall be done in accordance with manufacturer's recommendation.
- I. Cleaning shall be done in a manner and using such materials as to not damage the Work.
- J. Clean areas prior to painting or applying adhesive.



- K. 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.
- L. Clean all areas that will be concealed prior to concealment.
- M. Dispose of all fluids according to the approved Washing Plan.

**3.02 FINAL CLEANING**

- A. Inspect interior and exterior surfaces, including concealed spaces, in preparation for completion and acceptance.
- B. Remove dirt, dust, litter, corrosion, solvents, discursive paint, stains and extraneous markings.
- C. Remove surplus materials, except those materials intended for maintenance.
- D. Remove all tools, appliances, equipment and temporary facilities used in the construction.
- E. Remove detachable labels and tags. File them with the manufacturer's specifications for that specific material for the City's records.
- F. Repair damaged materials to the specified finish or remove and replace.
- G. 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.
- H. Final cleanup applies to all areas, whether previously occupied and operational or not.
- I. 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 01710**

## SECTION 01720

### CONTRACT RECORD DOCUMENTS

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. The Work specified in this Section consists of maintaining, marking, recording and submitting contract record documents which include shop drawings, warranties, contract documents and contractor records.

##### 1.02 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 his 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 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.

##### 1.03 QUALITY CONTROL

- A. Record documents shall be prepared to a high standard of quality, such as that set forth in MIL STD 100, ANSI Standard Drafting Manual Y14 or other relevant lower tier specification defining equal drafting quality for microfilming, except for daily reports.

## **PART 2 - PRODUCTS (NOT USED)**

## **PART 3 - EXECUTION**

### **3.01 MAINTENANCE OF DOCUMENTS**

- A. The Contractor shall maintain at the worksite on a current basis one 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.
- B. 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 Technical Specifications Section 01091.
    - d. Affirmative Action Plan and documents.
    - e. One set of drawings to record the following:
      - 1) Horizontal and vertical location of underground utilities affected by the Work.
      - 2) 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 drawing shall also reference the applicable submittal for the item being located.
      - 3) Field changes of dimensions and details including as-built elevations and location (station and offset).
      - 4) Details not on original contract drawings but obtained through requests for information or by other communications with the City.
  2. Contractor Records
    - a. Daily QC Reports
    - b. Certificates of compliance for materials used in construction
    - c. Nonconformance Reports (NCRs)
    - d. Remedial Action Requests (RARs)
    - e. Completed inspection list
    - f. Inspection and test reports
    - g. Test procedures
    - h. Qualification of personnel
    - i. Approved submittals
    - j. Material and equipment storage records
    - k. Safety Plan
    - l. Erosion, sediment, hazardous and quality plans

- m. Hazardous material records
- n. First report of injuries..

### **3.02 RECORDING**

- A. Label each document page or article "PROJECT RECORD" in two inch high letters.
- B. 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 technical specifications and contract drawings to record:
  - 1. Manufacturer, trade name, catalog number and supplier of each product and item actually installed
  - 2. Changes made by change orders, requests for information, substitutions and variations approved by submittals.

### **3.03 DOCUMENT MAINTENANCE**

- A. Provide files and racks for storage of documents to maintain in clean, dry and legible condition, which shall be turned over to the City prior to final acceptance.
- B. Do not use record documents for construction purposes.
- C. Make documents available for inspection by the Project Manager and any others having jurisdiction.

### **3.04 MONTHLY REVIEW**

- A. Prior to any application for payment, the Project Manager or his 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.
- B. If, during the inspection, the Project Manager determines that the documents are not being maintained and kept current as to 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 and recording the as-built contract data. This cost will be determined on the basis of \$75.00 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 01720**

## SECTION 01730

### OPERATION AND MAINTENANCE DATA

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. The Work specified in this Section consists of preparing and submitting operation and maintenance data for mechanical, electrical and other specified equipment.

##### 1.02 SUBMITTALS

- A. Refer to Technical Specifications Section 01300 and 01340 for submittal procedures.
- B. Submit one (1) electronic copy and one (1) bound hard copy of the proposed Operation and Maintenance Data Manual format including a table of contents not less than 90 days prior to acceptance tests and final inspection.
- C. Submit one (1) electronic copy and one (1) bound hard copy of the complete Operation and Maintenance Data Manuals in final form 30 days prior to system startup.
- D. Submit one (1) electronic copy and one (1) bound hard copy 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.

##### 1.03 CONTINUOUS UPDATING PROGRAM

- A. Furnish one 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, as it becomes available.

#### PART 2 - PRODUCTS

- A. The following products are the requirements of hard copies:
- B. PAPER SIZE 8-½ inches x 11 inches.
- C. PAPER White bond, at least 20 pound weight.
- D. TEXT typewritten.
- E. 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.
- F. DRAWINGS 8-½ 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.
- G. PRINTS OF DRAWINGS black ink on white paper, sharp in detail and suitable for making reproductions.

- H. FLYSHEETS Separate each portion of the manual with colored, neatly prepared flysheets briefly describing the contents of the ensuing portion.
- I. 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 3.02 below.
- J. BINDINGS Conceal the binding mechanism inside the manual; lockable 3 ring binders shall be provided.

### **PART 3 - EXECUTION**

#### **3.01 GENERAL**

- A. Assemble each operation and maintenance manual using the manufacturer's latest standard commercial data.

#### **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)
  - 6. (Leave spaces for signatures of the City representatives and acceptance date)

#### **3.03 CONTENTS OF THE MANUAL**

- A. An index of all volumes in each volume of multiple volume systems.
- B. An index in front of each volume. List and combine the literature for each system in the sequence of operation.
- C. Name, address and telephone numbers of Contractor, suppliers and installers along with the manufacturer's order number and description of the order.
- D. Name, address and telephone numbers of manufacturer's nearest service representatives.
- E. Name, address and telephone number of nearest parts vendor and service agency.
- F. Copy of guaranties and warranties issued to, and executed in the name of, the City.
- G. Anticipated date City assumes responsibility for maintenance.
- H. Description of system and component parts including theory of operation.
- I. Pre operation check or inspection list.
- J. Procedures for starting, operating and stopping equipment.
- K. Post operation check or shutdown list.

- L. Inspection and adjustment procedures.
- M. Troubleshooting and fault isolation procedures for on-site level of repair.
- N. Emergency operating instructions.
- O. Accepted test data.
- P. Maintenance schedules and procedures.
- Q. Test procedures to verify the adequacy of repairs.
- R. One copy of each wiring diagram.
- S. One copy of each piping diagram.
- T. Location where all measurements are to be made.
- U. One copy of each duct diagram.
- V. One copy of control diagram.
- W. One copy of each accepted shop drawing.
- X. One copy of software programs imputable or changeable on site.
- Y. Manufacturer's parts list with catalog names, numbers and illustrations.
- Z. A list of components which are replaceable by the City.
- AA. An exploded view of each piece of the equipment with part designations.
- BB. List of manufacturer's recommended spare parts, current prices and recommended quantities for two years of operation.
- CC. List of special tools and test equipment required for the operation, maintenance, adjustment, testing and repair of the equipment, instruments and components.
- DD. Scale and corrosion control procedures.
- EE. Disassembly and re-assembly instructions.
- FF. Troubleshooting and repair instructions.
- GG. Calibration procedures.
- HH. Ordering information.
- II. Training course material used to train City staff, including slides and other presentation material.

#### **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 01730**

## SECTION 01740

### WARRANTIES AND BONDS

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. The Work specified in this Section consists of preparing and submitting warranties and bonds required by these specifications.

##### 1.02 SUBMITTALS

- A. Refer to Technical Specifications Section 01300 for submittal procedures.
- B. Submit executed warranties and bonds.

#### PART 2 - PRODUCTS (NOT USED)

#### PART 3 - EXECUTION

##### 3.01 WARRANTIES AND BONDS

- A. Execute the warranties and bonds required by the Contract Documents. Prepare and submit a list of all warranties and bonds on the form provided by the City. Reference Technical Specifications Section 01999.
- B. Provide warranties or bonds for the materials, labor and time period set forth in the sections of these specifications requiring such documents. All warranties shall be for a minimum period of one year unless the technical specifications for a specific item require a greater period of time.
- C. Provide all warranties and bonds that the manufacturer or supplier furnishes at no additional cost in regular commercial trade. All warranties shall be for a minimum period of one year unless the technical specifications for a specific item require a greater period of time.

#### 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 01740**

## SECTION 01999

### STANDARD FORMS

#### PART 1 - GENERAL

##### 1.01 FORMS

- A. The forms listed below and appended to this Section will be used for performance of the Work as indicated. This is not a complete listing of all required forms. The Contractor shall properly complete all forms required by the contract or the Project Manager. The Project Manager shall review and approve all submitted forms. If submitted forms are not acceptable the Contractor shall resubmit forms in an acceptable format.

##### 1.02 APPENDICES

- A. Attached to this Technical Specifications Section are the following forms:
1. Daily Quality Control Report (Form CM-13) (1 Page)
  2. Request for Information (Form CM-17) (1 Page)
  3. Submittal Transmittal Form (Form CM-30) (Page 1 of 2)
  4. Submittal Transmittal Form (Form CM-30) (Page 2 of 2)
  5. Contractor Warranty (Form CM-10) (4 Pages)
  6. Contractor/Subcontractor Warranty (Form CM-11) (4 Pages)
  7. Contractors Certification of Payment (Form CM-19) (this form shall be completed and submitted with each pay application) (1 Page)
  8. Pay Application Form (CM-18) (1 Page)
  9. Certificate of Current Cost or Pricing Data (Form CM-69) (1 Page)
  10. Subcontractor Partial Lien Release Form (Form CM-26) (1 Page)
  11. Subcontractor Final Lien Release Form (Form CM-70) (1 Page)
  12. Request for Substitution (Form CM-09) (5 pages)
  13. System Shutdown Request Forms:
    - a. Shall be available upon request.

#### PART 2 - PRODUCTS (NOT USED)

#### PART 3 - EXECUTION

##### 3.01 COMPLETING FORMS

- A. All documents are to be filled digitally by the Contractor using the format provided by the Project Manager or using Adobe Acrobat 8 or newer. It is at the discretion of the Project Manager if other forms or formats will be accepted.

##### 3.02 SIGNING FORMS

- A. Original hand written signatures are acceptable for all documents. The Contractor is to fill out the document as indicated above prior to signing the hard copy. If the form is to be submitted digitally to the Project Manager the document shall be scanned and saved as an Adobe Acrobat 8 or newer file.
- B. Digital signatures are acceptable for all documents. The Contractor is to fill out the document digitally in the format provided by the Project Manager or Adobe Acrobat 6 or newer. The file must be signed using Adobe Acrobat 8 or newer and submitted digitally to the Project Manager.
  - 1. Add digital signatures must contain the name of signer in plain text and the time and date the signature is executed.

#### **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 01999**

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# DENVER INTERNATIONAL AIRPORT REQUEST FOR SUBSTITUTION

CONTRACT NO. (Number)

CONTRACT TITLE: (Title)

---

**This form is to be used only after Notice to Proceed. Completely fill in this form. If necessary, use additional pages. If a question is not applicable, write "NA". Use of this form will help ensure a faster response to the Contractor's request.**

I. In accordance with General Condition 406, check the appropriate item for the reason for the substitution request:

A. The specified material or equipment is not available (provide name and telephone number of who was contacted at bid time and at time order was placed):

\_\_\_\_\_

B. The specified material or equipment is not deliverable within a reasonable time (provide the delivery time quoted at the time of bid, telephone number and name of person contacted, when the contractor was notified this time could not be met, and why:

\_\_\_\_\_

C. The substitution is being requested as allowed by technical specification:

\_\_\_\_\_

II. What is specified in the contract?

A. Specification section and page \_\_\_\_\_

B. Drawing number and detail \_\_\_\_\_

C. Specific product \_\_\_\_\_

D. Specified manufacturer \_\_\_\_\_

E. Specified model number and features \_\_\_\_\_

F. Other specified requirements \_\_\_\_\_

III. Substitution being requested:

A. Substitution product \_\_\_\_\_

B. Substitution manufacturer \_\_\_\_\_

C. Substitution model number and features \_\_\_\_\_

---

# DENVER INTERNATIONAL AIRPORT REQUEST FOR SUBSTITUTION

**CONTRACT NO. (Number)**

**CONTRACT TITLE: (Title)**

---

- IV. Provide additional reasons why the substitution is being requested under technical specification Section 01630: \_\_\_\_\_
- \_\_\_\_\_
- V. Provide a list of all variations from what is specified in the contract. Any variation not listed and later found to impact the City could lead to rejection of the substitution at a later date.
- VI. Provide detailed manufacturer's literature, samples and drawings to comply with technical specification submittal requirements.
- VII. Provide details on compatibility with the rest of the project, including but not limited to:
- A. Dimensions, including required clearances (provide a sketch showing an outline of the substitution with dimensions and clearances as required).
  - B. Utility connection size, type and locations, including electrical, plumbing, HVAC, fire protection, and controls (provide a sketch showing the locations of each utility connection and a brief description of the connection).
  - C. Samples of color and texture, as required.
  - D. Performance characteristics, including performance curves and different operating conditions.
- VIII. Provide details on reliability, ease of use and maintenance, including:
- A. Instructions on operation and maintenance
  - B. The name and location of the local organization that is certified to maintain the substitution.
  - C. A list of at least three other projects of similar nature to this contract where the substitution has been in use for at least one year. This list shall include the telephone number and the name of the person to contact at these projects.
- IX. Provide detailed information on cost of the specified material versus the substitution, including but not limited to:
- A. Operating cost for one year and for the life of the substitution
  - B. Energy consumption for one year.
  - C. Maintenance cost for one year and for the life of the substitution
  - D. Cleaning cost for one year and for the life of the substitution

---

# DENVER INTERNATIONAL AIRPORT REQUEST FOR SUBSTITUTION

**CONTRACT NO. (Number)**

**CONTRACT TITLE: (Title)**

---

- E. Repair parts list recommended by the manufacturer, including prices
  - F. Cost to install parts
  - G. Cost to upgrade to the next higher performance level
  - H. A list of any license fees or royalties that must be paid
  - I. Any additional costs for the area in which the substitution is located; such as, additional heating or cooling requirements to maintain a prescribed environment
- X. Provide detailed information on the schedule impact of approving the substitution, including but not limited to:
- A. Date by which the substitution must be approved to avoid any schedule impact (note that substitution requirements must be submitted 30 days prior to when the order must be placed per GC 406).
  - B. Date the order will be placed.
  - C. What item in the schedule is the substitution connected to or with, and how is it connected?
  - D. When the submittal requirements of technical specification section 01300 and 01340 will be met.
  - E. Any impact on Milestone dates or Contract Time.
  - F. Any impact on the sequence of work as shown on the accepted schedule.
- XI. Provide potential cost savings to the Contractor and the Contractor's willingness to share with the City, including but not limited to savings in:
- A. Change in material price due to substitution      \$ \_\_\_\_\_
  - B. Change in installation price due to substitution      \$ \_\_\_\_\_
  - C. Increased float or altered schedule critical path?      Yes \_\_\_\_\_      No \_\_\_\_\_
  - D. Increased production rates on other work?      Yes \_\_\_\_\_      No \_\_\_\_\_
  - E. Change in prices from subcontractors due to substitution?      \$ \_\_\_\_\_

---

# DENVER INTERNATIONAL AIRPORT REQUEST FOR SUBSTITUTION

CONTRACT NO. (Number)

CONTRACT TITLE: (Title)

---

**SUBSTITUTIONS WHICH WILL INCREASE OR DECREASE THE CONTRACT AMOUNT OR MODIFY ANY SCHEDULED EVENT MUST BE SUBMITTED WITH A DETAILED NARRATIVE AND COST AND/OR SCHEDULE BREAKDOWN**

XII. The substitution's ability to meet all applicable governing regulations, rules and laws, including funding agency requirements.

**NOTE:** Specified materials and equipment on FAA funded contracts must meet FAA requirements. The Contractor will provide proof that the exact substitution being requested is FAA approved.

## CONTRACTOR'S STATEMENT:

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 items or process are described in this request along with all cost and scheduling data.

\_\_\_\_\_  
Contractor's Superintendent Name

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

**As a condition of submitting a Request for Substitution, the Contractor waives all rights to claim for extra cost for change in Contract Time other than those outlined in the request and approved by the Deputy Manager of Aviation. The Contractor also, by submitting a Request for Substitution, accepts all liability for cost and scheduling impact on other contractors or the City due to the substitution.**



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**DENVER INTERNATIONAL AIRPORT  
REQUEST FOR SUBSTITUTION**

**CONTRACT NO. (Number)** \_\_\_\_\_

**CONTRACT TITLE: (Title)** \_\_\_\_\_

---

**RECOMMENDATION AND APPROVAL: (IF DISAPPROVED, STATE THE REASON)**

- I. Designer of Record recommendation:  
**APPROVED** \_\_\_\_      **APPROVED AS NOTED** \_\_\_\_      **DISAPPROVED** \_\_\_\_  
**Notes:**
  
- II. CCD Design Project Manager recommendation:  
**APPROVED** \_\_\_\_      **APPROVED AS NOTED** \_\_\_\_      **DISAPPROVED** \_\_\_\_  
**Notes:**
  
- III. CCD Estimating/Scheduling recommendation:  
**APPROVED** \_\_\_\_      **APPROVED AS NOTED** \_\_\_\_      **DISAPPROVED** \_\_\_\_  
**Notes:**
  
- IV. CCD Construction Project Manager recommendation:  
**APPROVED** \_\_\_\_      **APPROVED AS NOTED** \_\_\_\_      **DISAPPROVED** \_\_\_\_  
**Notes:**
  
- V. CCD Manager of Construction recommendation:  
**APPROVED** \_\_\_\_      **APPROVED AS NOTED** \_\_\_\_      **DISAPPROVED** \_\_\_\_  
**Notes:**

**If approval is given, it is based on the information provided with particular emphasis on the list of variations. If any information is incorrect or incomplete, approval may be withdrawn at the Contractor's expense.**

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# DENVER INTERNATIONAL AIRPORT CONTRACTOR WARRANTY

**CONTRACT NO.:** \_\_\_\_\_

**CONTRACT TITLE:** \_\_\_\_\_

**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 DIA 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 1999 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 substitutions 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 1999 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

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# DENVER INTERNATIONAL AIRPORT CONTRACTOR WARRANTY

**CONTRACT NO.:**

**CONTRACT TITLE:**

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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 in the 1999 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, in writing, a review of the City's decision in accordance with the 1999 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.

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# DENVER INTERNATIONAL AIRPORT CONTRACTOR WARRANTY

**CONTRACT NO.:**

**CONTRACT TITLE:**

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**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

**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

Warranty Period

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**DENVER INTERNATIONAL AIRPORT  
CONTRACTOR WARRANTY**

**CONTRACT NO.:** \_\_\_\_\_

**CONTRACT TITLE:** \_\_\_\_\_

**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:**

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

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**DENVER INTERNATIONAL AIRPORT  
CONTRACTOR / SUBCONTRACTOR WARRANTY**

**CONTRACT NO.:** \_\_\_\_\_

**CONTRACT TITLE:** \_\_\_\_\_

**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 DIA 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 1999 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 in order to maintain the progress of the Work and/or keep systems operating without any additional costs to the contractor or the City. The obligations of this Subcontractor Warranty shall survive termination of the subcontract under the provisions of the 1999 edition of the General

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**DENVER INTERNATIONAL AIRPORT  
CONTRACTOR / SUBCONTRACTOR WARRANTY**

**CONTRACT NO.:**

**CONTRACT TITLE:**

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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.

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 1999 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.

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**DENVER INTERNATIONAL AIRPORT  
CONTRACTOR / SUBCONTRACTOR WARRANTY**

**CONTRACT NO.:** \_\_\_\_\_

**CONTRACT TITLE:** \_\_\_\_\_

---

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 decision in accordance with the 1999 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.

<u>Specification Number</u>	<u>Specification Title</u>	<u>Warranty Period</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.

<u>Specification Number</u>	<u>Specification Title</u>	<u>Warranty Period</u>
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**Subcontractor:**

By: \_\_\_\_\_

Title: \_\_\_\_\_



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**DENVER INTERNATIONAL AIRPORT  
CONTRACTOR / SUBCONTRACTOR WARRANTY**

**CONTRACT NO.:** \_\_\_\_\_ **CONTRACT TITLE:** \_\_\_\_\_

---

Date: \_\_\_\_\_

**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: \_\_\_\_\_

Date: \_\_\_\_\_



DENVER INTERNATIONAL AIRPORT

# Daily Quality Control Report

Contract Name:		
Contractor:	_____	Contract No.: _____
Subcontractor:	_____	Date: _____
Prepared by:	_____	Report No.: _____

Weather:      Sunny      Fair      Cloudy      Rain \_\_\_\_\_ inches      Snow \_\_\_\_\_ inches

Max. Wind: \_\_\_\_\_ mph     Max/Min Temp. \_\_\_\_\_ deg F/ \_\_\_\_\_ deg F

DAILY ACTIVITIES WITH LOCATION	SHIFT START _____ STOP _____	LOAD COUNTS	COMPLIES WP&S	
			YES	NO

QUANTITY COMPLETE								MAJOR SHIPMENTS RECEIVED			

Subcontractors									EQUIPMENT AT SITE		
									DESCRIPTION	NO.	HRS.

PERSONNEL											
Work Delayed and Reason											
Rework and Reason											
Potential Future Delays											

Problems and Unusual Conditions	UNDER REPAIR			
Direction Received				

CERTIFIED BY (signature required):

Contractor QC Representative: \_\_\_\_\_

Contractor Superintendent: \_\_\_\_\_

Page \_\_\_\_ of \_\_\_\_

**NOTE: This report must be completed with legible handwriting and submitted to the City and County of Denver Project Manager with original signatures. Use a separate sheet per shift.**

# DENVER INTERNATIONAL AIRPORT REQUEST FOR INFORMATION

Contractor: \_\_\_\_\_  
 Subcontractor: \_\_\_\_\_  
 Contract Title: \_\_\_\_\_  
 Site Location: \_\_\_\_\_

RFI No.: \_\_\_\_\_  
 Procurement No.: \_\_\_\_\_  
 Date Logged: \_\_\_\_\_  
 Logged by: \_\_\_\_\_

Subject: \_\_\_\_\_ Reply Required by: \_\_\_\_\_ URGENT?   
 Dwg./Spec. No.: \_\_\_\_\_ Detail/Sec. No.: \_\_\_\_\_

Problem:  
 \_\_\_\_\_  
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Proposed Solution from Contractor by:	Date:	Reviewed By:

Response by Project Manager:  
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 \_\_\_\_\_  
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 \_\_\_\_\_  
 \_\_\_\_\_

Solution by:	Date:	Reviewed By:	Date:



**CITY AND COUNTY OF DENVER  
DEPARTMENT OF AVIATION  
DENVER INTERNATIONAL AIRPORT**

Date of Invoice: \_\_\_\_\_  
 Contract No.: \_\_\_\_\_  
 Contract Title: \_\_\_\_\_  
 Contractor: \_\_\_\_\_  
 Application for Progress Payment No.: \_\_\_\_\_  
 For the Period: \_\_\_\_\_ to \_\_\_\_\_

**CONSTRUCTION CONTRACT  
APPLICATION FOR PROGRESS PAYMENT  
SUMMARY AUTHORIZATION**

**CONTRACTOR:**  
 I hereby warrant that: 1) The title to the Work covered by this estimate of Work completed will pass to the City by incorporation into the completed work; 2) The Work covered by previous estimates of Work completed is free and clear of liens, claims, security interests or encumbrances, except for any interest created by retainage; and 3) No Work covered by this estimate of Work completed is subject to an agreement under which an interest therein, or an encumbrance thereon, is retained by the seller or otherwise imposed by the Contractor or any other person or entity.

\_\_\_\_\_  
 SIGNATURE/TITLE DATE

**CITY AND COUNTY OF DENVER:**  
 I hereby certify that, to the best of my knowledge, this payment application represents a true and correct statement of the work performed and is in conformance with the terms of the Contract documents.

\_\_\_\_\_  
 Project Manager DATE  
 DIA Planning & Development

\_\_\_\_\_  
 Michael H. Steffens DATE  
 Assistant Deputy Manager of Aviation  
 DIA Planning & Development

**APPROVED FOR PAYMENT:**

\_\_\_\_\_  
 Margo Blu DATE  
 Senior Agency Budget Analyst  
 Finance & Administration

CONTRACT STATUS			
	TOTAL CONTRACT	CURRENT APPLICATION	PREVIOUS PAYMENT
a) ORIGINAL CONTRACT AMOUNT	\$ -		
b) PREVIOUS CHANGE ORDERS NOS. (+ or -)			
c) NEW CHANGE ORDERS NO. (+ or -)			
NO. (+ or -)	\$ -		
NO. (+ or -)	\$ -		
d) ADJUSTED TOTAL CONTRACT d = [a + b + c]	\$ -		
e) PREVIOUS EARNINGS			\$ -
f) EARNINGS THIS APPLICATION		\$ -	
g) TOTAL CURRENT EARNINGS g = [e + f]	\$ -		
h) TO COMPLETE h = [d - g]	\$ -		
i) PREVIOUS RETENTION			\$ -
j) RETENTION THIS APPLICATION 10%		\$ -	
k) TOTAL RETENTION k = [i + j]	\$ -		
l) OTHER DEDUCTIONS			
m) BALANCE DUE ON CONTRACT m = [h + k + l]	\$ -		
n) TOTAL PREVIOUS PAYMENTS n = [e - i - l]			\$ -
o) PAYMENT THIS APPLICATION o = [f - j - l]		\$ -	

Note: Items a, b, c, d, g, h, k and m amounts - place only in TOTAL CONTRACT column.



# CONTRACTOR'S CERTIFICATION OF PAYMENT

**CITY AND COUNTY OF DENVER  
DEPARTMENT OF AVIATION**

CONTRACT NO.: \_\_\_\_\_  
 PAYMENT NO.: \_\_\_\_\_  
 CONTRACT ENCUMBRANCE NO.: \_\_\_\_\_  
 CURRENT COMPLETION DATE: \_\_\_\_\_  
 PERCENT COMPLETE: \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_  
 CONTRACTOR NAME: \_\_\_\_\_  
 TELEPHONE NO.: \_\_\_\_\_  
 PROJECT MANAGER: \_\_\_\_\_  
 ORIGINAL CONTRACT AMOUNT: \$ \_\_\_\_\_  
 REVISED CONTRACT AMOUNT THRU C.O. NO. : \$ \_\_\_\_\_

SUBCONTRACTOR NAME	TIER OR SUPPLIER	SUBCONTRACTOR PERSON TO CONTACT	SUBCONTRACTOR TELEPHONE NO.	SUBCONTRACT AMOUNT (\$)	DBE, SBE or NON	PERCENT OF ORIGINAL CONTRACT	PERCENT OF REVISED CONTRACT	NET PAID TO DATE (\$)	NET PAID PERCENT COMPLETE	NET DUE THIS MONTH (\$)

- ( ) Check here if all undisputed CERTIFIED PAYROLLS have been submitted to the CITY AUDITOR for this Pay Application
- ( ) Check here if copies of documentation for all disputed CERTIFIED PAYROLLS for this Pay Application have been attached

The undersigned certifies that the information contained in this document is true and accurate and that the payments shown have been made to all subcontractors and suppliers used on the project and listed herein.

Contractor Name (print): \_\_\_\_\_

Date: \_\_\_\_\_

Contractor Signature: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_



# DENVER INTERNATIONAL AIRPORT PARTIAL LIEN RELEASE – CONSTRUCTION (Subcontractor)

Project: \_\_\_\_\_

Date: \_\_\_\_\_

City Contract No. \_\_\_\_\_

Current Subcontract  
Amount: \$ \_\_\_\_\_

FROM:  
Subcontractor \_\_\_\_\_

(1) Last Progress Payment for billing  
period ending \_\_\_\_\_ 20\_\_

Address: \_\_\_\_\_

\$ \_\_\_\_\_

City/State: \_\_\_\_\_

(2) Progress invoiced for previous billing  
period (if unpaid) \_\_\_\_\_ 20\_\_

Telephone: \_\_\_\_\_

\$ \_\_\_\_\_

TO:  
Contractor \_\_\_\_\_

(3) Progress invoiced for current billing  
period ending \_\_\_\_\_ 20\_\_

Address: \_\_\_\_\_

\$ \_\_\_\_\_

City/State: \_\_\_\_\_

(4) **Total Paid to Date:**  
\$ \_\_\_\_\_

( ) MBE/WBE      ( ) SBE      ( ) DBE      ( ) Non

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 payment, less retainage, for all labor, services, material 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, except for the withheld retainage.

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 through \_\_\_\_\_, 20\_\_, except for withheld retainage after it has received full payment, less retainage, of the amount invoiced for the current billing period.

Subcontractor: \_\_\_\_\_

Certified by: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

## CM-30 INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required number of copies.
2. Each submittal shall be numbered consecutively in the space provided for "Submittal No.". This number shall begin with the overall sequential number 001 through the last total number of submittals to date. This number shall not be repeated. Next, show the specification section number (e.g.; 01370) and end with the specification section sequential number 001 through the last submittal in that section.

EXAMPLE NO. 1: 005-01370-002        five submittals have been logged overall with two submittals made to specification section 01370.

EXAMPLE NO. 2: 009-01370-002R1    nine submittals made overall and one revision to submittal 01370-002.

Mark the appropriate box "New Submittal" or "Resubmittal". For first time specification section submittals place the submittal number in the "Transmittal No." box and an N/A in the "Previous Submittal No." box. For resubmittals place the new submittal number in the "Submittal No." box with the previous submittal number of that item in the "Previous Submittal No." box.

3. The "Item No." will be consecutive from 001 to the last item on the submittal form or forms if using multiple pages.
4. Use separate submittal forms for each specification section. Do NOT use more than one specification section on the same CM-30.
5. A check mark shall be placed in Column "g" when a submittal is not in accordance with the plans and specifications. Include a written statement to that effect in the "Remarks" box.
6. This form is self-transmitted; a separate Letter of Transmittal is NOT required.
7. When a sample of material or manufacturer's Certificate of Compliance is submitted, indicate "Sample" or "Certificate" in Column "c".
8. The CCD approving authority will assign action codes as indicated below in spaces provided in Column "h" for each item submitted. In addition, the CCD will ensure enclosures are indicated and attached to the form prior to return to the Contractor.

### THE FOLLOWING ACTION CODES SHALL BE GIVEN TO ITEMS SUBMITTED:

A - Accepted as submitted.	E - Not Accepted.
B - Accepted as Noted. Resubmission is NOT required.	F - Receipt Acknowledged.
C - Revise and Resubmit. Resubmission IS required.	

9. Acceptance of items does not relieve the Contractor from complying with all requirements of the contract plans and specifications.
10. CCD PM's: Submittals are to be filed by Specification section and the Spec consecutive number, (01370-002). The overall sequential number is to assure all submittals are accounted for.

<b>SUBMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE</b> (Read instructions on the reverse side prior to initiating this form)	DATE:		<input type="checkbox"/> New Submittal <input type="checkbox"/> Resubmittal
---	-------	--	--

**Section I REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS (This section will be initiated by the Contractor)**

TO: City and County of Denver 8500 Pena Boulevard Denver, Colorado 80249 Attention:	FROM:	CONTRACT NO.	SUBMITTAL NO.  PREVIOUS SUBMITTAL NO.
--	-------	--------------	---

SPECIFICATION SECTION NO. (Cover only one section with each submittal)	PROJECT TITLE AND LOCATION
--	----------------------------

I T E M  #  a.	DESCRIPTION OF ITEM SUBMITTED (Type, size, model number, etc.)  b.	MFG. OR CONTR. CAT. CURVE DRAWING OR BROCHURE NO. (See Instruction No. 7)  c.	No. of Copies  d.	CONTRACT REFERENCE DOCUMENT		VAR. (See Instruction No. 5)  g.	FOR CCD ACTION CODE  h.
				SPEC. PARAGRAPH NO.  e.	DRAWING SHEET NUMBER  f.		

REMARKS:	<b>Section II APPROVAL ACTION</b>
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**CONTRACTOR'S CERTIFICATION:**  
 (SEAL & SIGNATURE OF CONTRACTOR P.E. (as required))

**PROJECT MANAGER REVIEW:**

<b>A</b> [ ] <b>ACCEPTED</b>	Item Nos.
<b>B</b> [ ] <b>ACCEPTED AS NOTED</b>	Item Nos.
<b>C</b> [ ] <b>REVISE &amp; RESUBMIT</b>	Item Nos.
<b>E</b> [ ] <b>NOT ACCEPTED</b>	Item Nos.
<b>F</b> [ ] <b>RECEIPT ACKNOWLEDGED</b>	Item Nos.

Review is only for conformance to the respective requirements of the Contract Documents. Confirmation of dimensions, fabrication processes, construction techniques and coordination of the work of all trades are the sole responsibility of the Contractor. Permission to proceed with procurement, fabrication and/or construction is general only and shall not relieve nor diminish the responsibility of the Contractor for full compliance with the requirements of the Contract Documents.

Contract No.	Submittal No.	Date:
Name of Project Manager:		
Signature of Project Manager:		

I certify that the above submitted items have been reviewed in detail, and are correct and in strict conformance with the Contract Drawings and Specifications except as otherwise noted.

**NAME AND SIGNATURE OF CONTRACTOR:**

ENCLOSURES RETURNED (List by Item No.)

COMMENTS BY PROJECT MANAGER ATTACHED (if applicable)



# DENVER INTERNATIONAL AIRPORT

## CERTIFICATE OF CURRENT COST OR PRICING DATA

**Contract Title:**

**Contract No.:**

**This is to certify that, to the best of my knowledge and belief, the cost of pricing data submitted in writing to the City in support of \_\_\_\_\_ is accurate, complete and current as of \_\_\_\_\_ and represents the best price that is available from suppliers and subcontractors.**

**This certification includes the cost of pricing data supporting any advance agreements and forward pricing rate agreements between the offeror and the City that are part of the proposal.**

<b>FIRM</b>
<b>NAME</b>
<b>TITLE</b>
<b>DATE</b>



# DENVER INTERNATIONAL AIRPORT FINAL LIEN RELEASE – CONSTRUCTION (Subcontractor)

Project: \_\_\_\_\_

Date: \_\_\_\_\_

City Contract No. \_\_\_\_\_

Subcontractor Contract No. \_\_\_\_\_

FROM:

Subcontractor: \_\_\_\_\_

Dated: \_\_\_\_\_, 20\_\_

(1) Last Progress Payment for billing  
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     Non

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 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.

Subcontractor: \_\_\_\_\_

Certified by: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_